ORDER NO. KM40109683C2

Service Manual

Telephone Equipment

KX-TCD700NEB

Digital Cordless Phone
Black Version
(for Nordic model)

(HANDSET)

(BASE UNIT)

SPECIFICATIONS

SPECIFICATION

Standard:	DECT=Digital Enhanced Cordless Telecommunications GAP=Generic Access Profile (herstellerubergreifendes DECT-Funkubertragungs verfahren)
Number of channels:	120 Duplex Channels
Frequency range:	1.88 GHz to 1.9 GHz
Duplex procedure:	Time Multiplex, 10 ms frame length
Channel Spacing:	1728 kHz
Bit rate spacing:	1152 kbit/s
Modulation:	GFSK
Voice coding:	32 kbit/s
Operation range:	Up to 300 m outdoors, up to 50 m indoors
Analog telephone connection:	Telephone Line / PBX
Power source:	AC Adaptor 230 V ~ /50 Hz
Power consumption, Base unit:	5 VA

Battery life, Handset (if batteries are fully charged):	Stand-by: Up to 100 hours (Ni-Cd) Talk: Up to 12 hours (Ni-Cd)
Operating conditions:	5˚ - 40˚C, 20 - 80% relative air humidity (not condensing)
Dialing modes:	Pulse/Tone
Recall button (set default):	Flash (80 ms)
for PBX:	Flash (700 ms)
Recall button (option):	Earth (400 ms/1300 ms)
Dimensions, Base unit:	about 104.5 mm x 123.2 mm x 58 mm (L x W x D)
Dimensions, Handset:	about 136 mm x 47 mm x 31.5 mm (L x W x D)
Weight, Base unit:	about 140 g
Weight, Handset:	about 70 g
Telephone line cord length:	about 1.8 m
AC adaptor cord length:	
Connection jack:	
Telephone line cord:	RJ11 cable with Denmark, Sweden and Finland plugs. RJ11 to Norway telcord
AC adaptor cord:	Low voltage D.C. jack
AC adaptor plug:	Euro jack

Design and specification are subject to change without notice.

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt tp service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

When you mention the serial number, write down all 11 digits. The serial number may be found on the label affixed to the bottom of the unit.

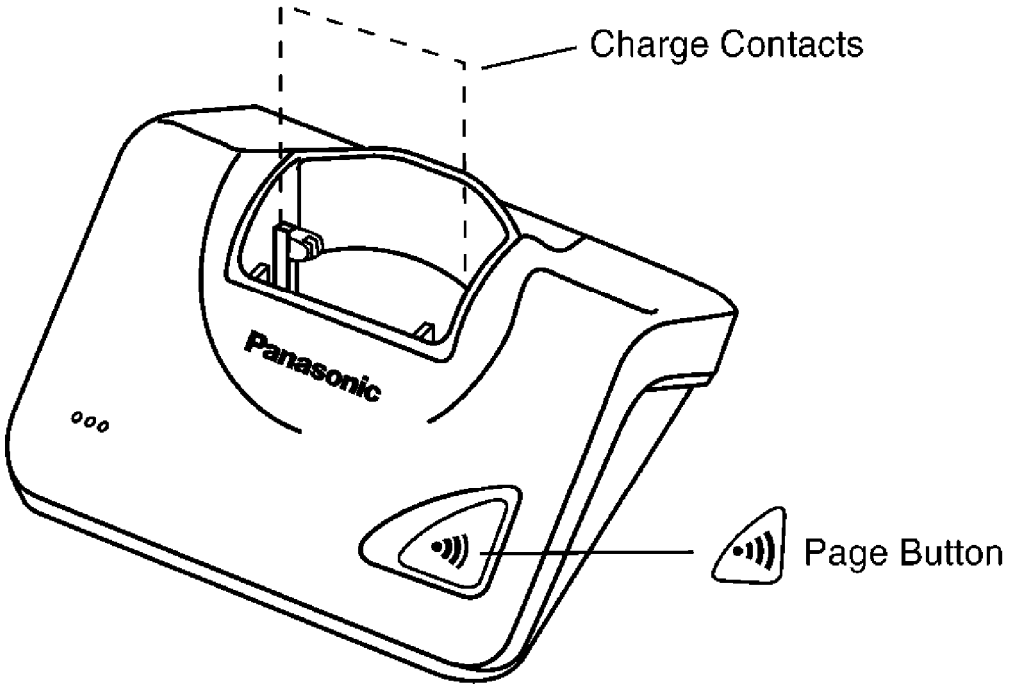
FOR SERVICE TECHNICIANS

ICs and LSIs are vulnerable to static electricity.
When repairing, the following precautions will help prevent recurring malfunctions.
1. Cover plastic parts boxes with aluminum foil.
2. Ground the soldering irons.
3. Use a conductive mat on worktable.
4. Do not grasp IC or LSI pins with bare fingers.

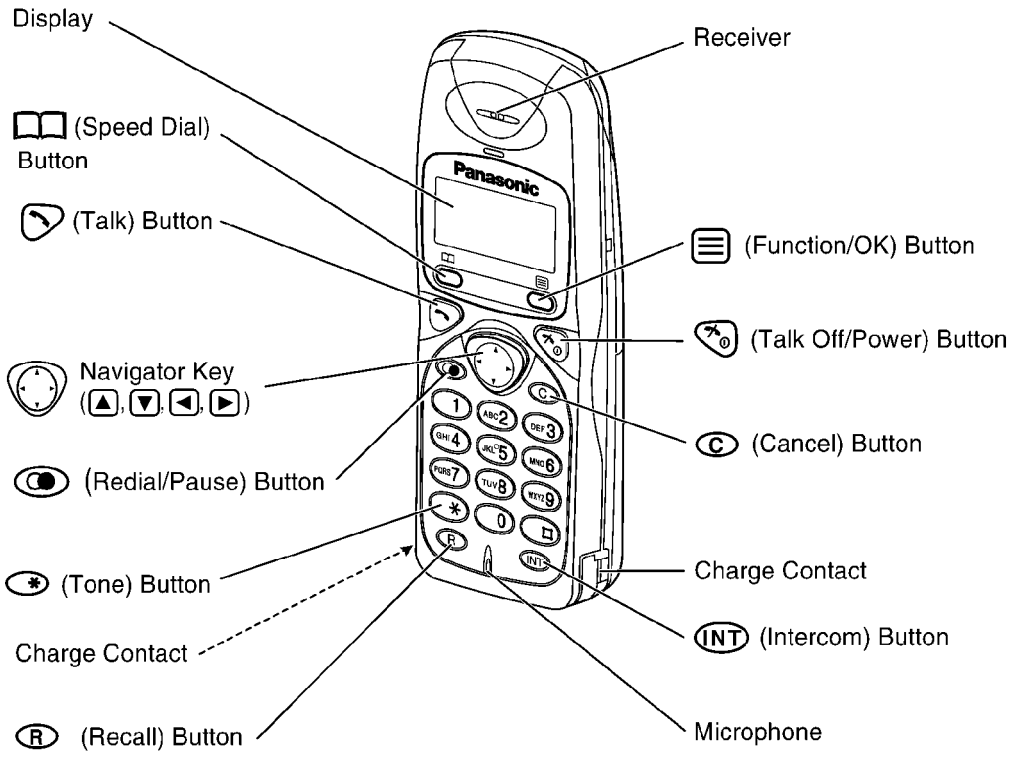
Panasonic

1. LOCATION OF CONTROLS

1.1. Base Unit

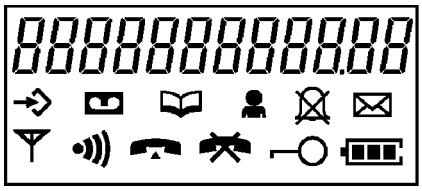


1.2. Handset



1.3. Displays

1.3.1. Handset Display



(The display shows all possible configurations)

1.3.2. Icons

The in-range icon indicates that the handset is in range of the base unit. It flashes when the handset is out of range.

The page/intercom icon is displayed when paging or using the intercom. It flashes when another unit pages the handset.

The talk icon is displayed when making or answering calls. It flashes when an outside call is being received.

The direct call icon is displayed when this mode is turned on.

The call prohibition icon is displayed when this mode is turned on.

The program icon indicates that the unit is in the programming mode.

The ringer off icon indicates that ringer tone is temporarily turned OFF.

The battery icon indicates the battery strength.

The Key Lock icon is displayed when key lock is set on the handset. In this mode, keypad is disabled.

The speed dial icon is displayed when this mode is turned on.

1.3.3. LCD

Character	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
Display	A	b	C	d	E	F	G	H	I	J	h	L	n	n	O	P	q	r	S

Character	T	U	V	W	X	Y	Z	1	2	3	4	5	6	7	8	9	*	0	#
Display	t	U	U	U	H	y	2	I	2	3	4	5	6	7	8	9	-	0	=

Note:

The LCD on your handset is a 7 segment display and each character will be displayed as shown in the table above. Some displayed characters differ e.g.character M is displayed as n. This is not a fault of the display and is normal display condition.

2. DISASSEMBLY INSTRUCUTIONS

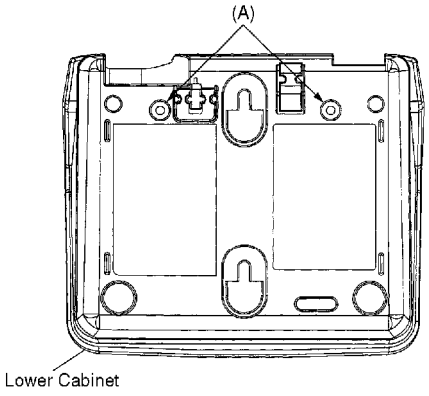


Fig. 1

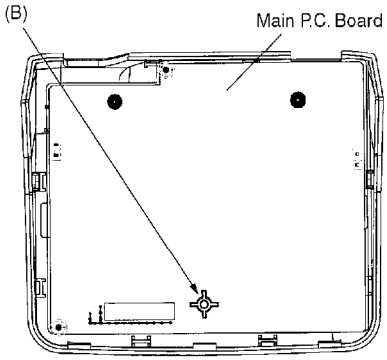


Fig. 2

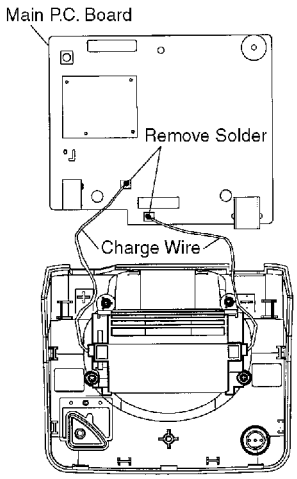


Fig. 3

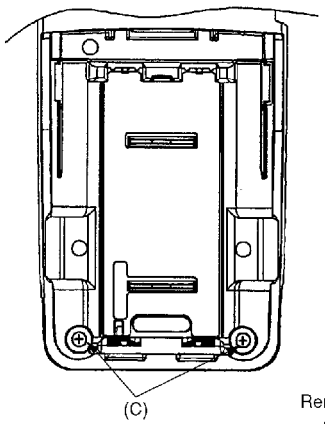


Fig. 4

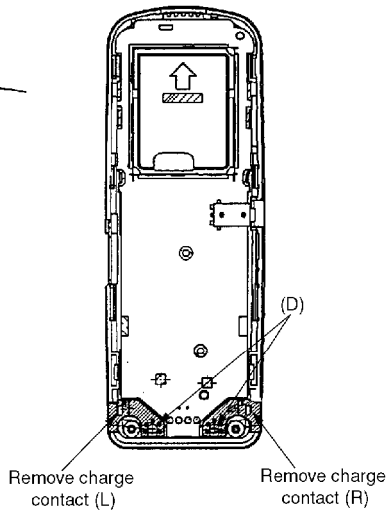


Fig. 5

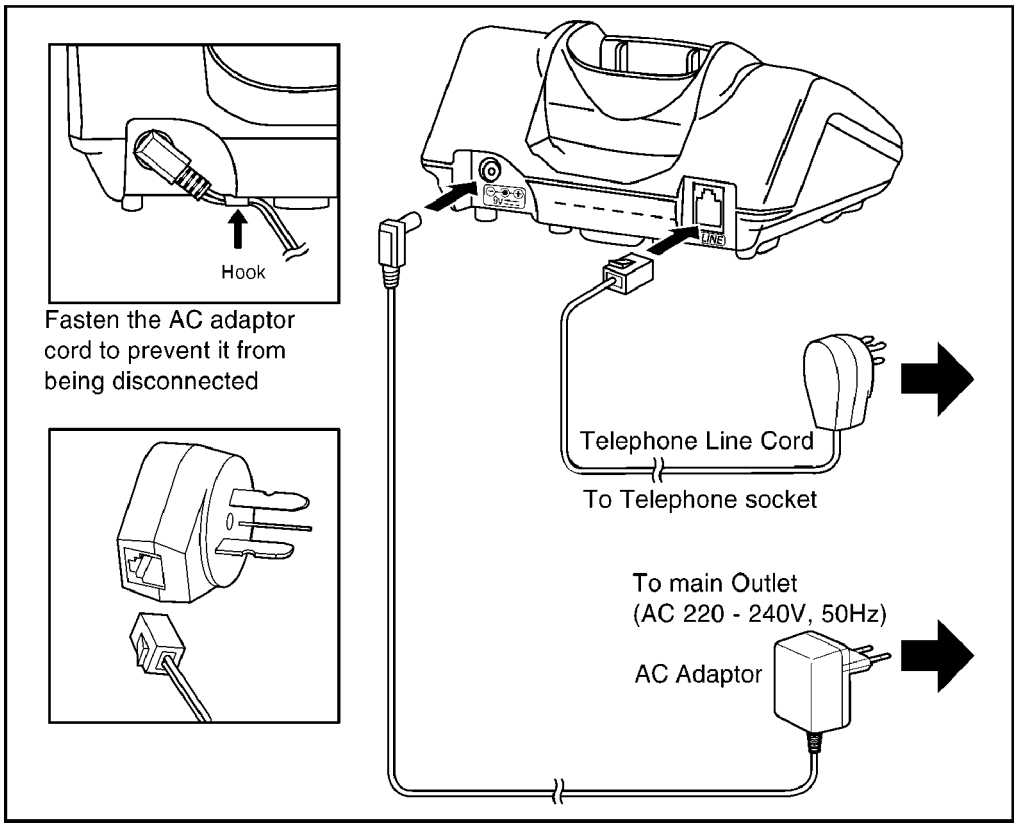
Shown in Fig.-	To Remove	Remove
1	Lower Cabinet of base	Screws (2.6 × 14).....(A) × 2
2	Main P.C. Board of base	Screw (2.6 × 10).....(B) × 1
3	Main P.C. Board of base	Charge wire solder
4	Rear Cabinet of handset	Screws (2 × 8).....(C) × 2
5	Main P.C. Board of handset	Screws (2 × 6).....(D) × 2

3. SETTINGS

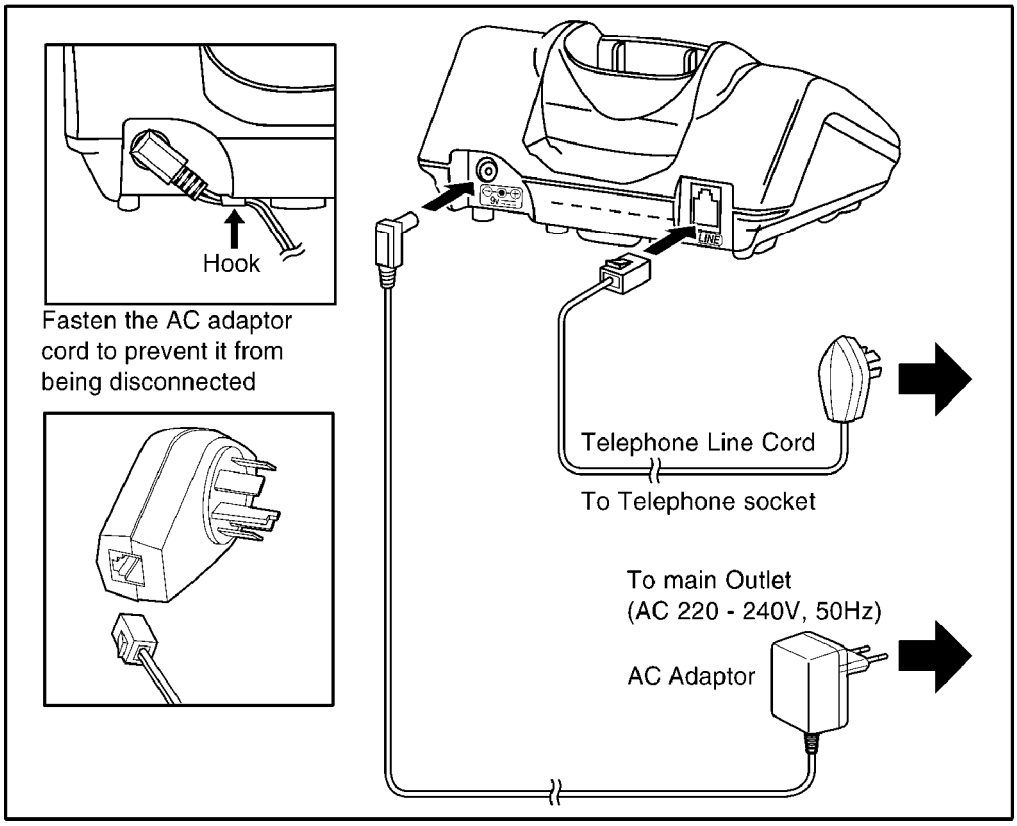
3.1. Connections

Plug in the AC Adaptor and the telephone line cord to the rear of the unit. Then connect the cord as shown.

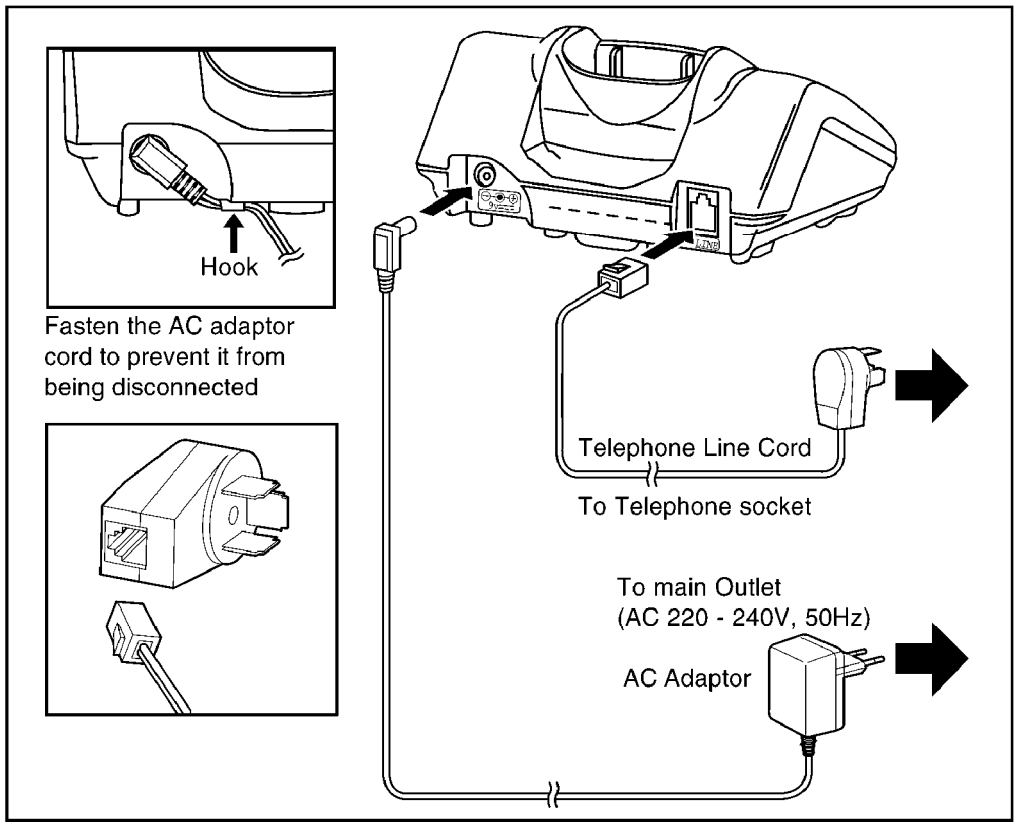
<for Finland>



<for Sweden>



<for Denmark>



USE ONLY WITH Panasonic AC ADAPTOR PQLV1CE.

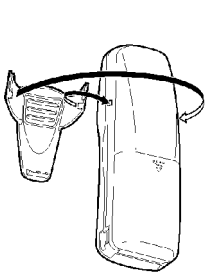
- The AC Adaptor must remain connected at all times. (It is normal for the adaptor to feel warm during use.)

- If your unit is connected to a Telephone line or PBX which does not support Caller ID services, you cannot access those services.

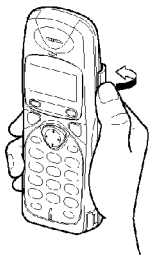
- The telephone will not work during a power failure. We therefore recommend you use a standard telephone in this circumstance.

3.2. Using the Belt Clip

You can hang the handset on your belt or pocket using the belt clip.



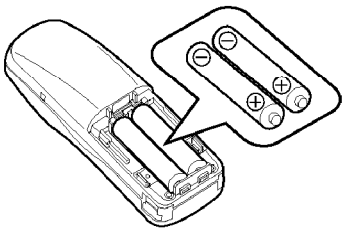
To remove the belt clip

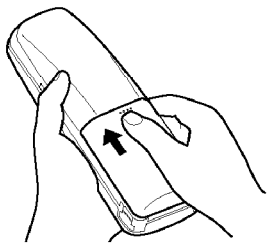


3.3. Batteries

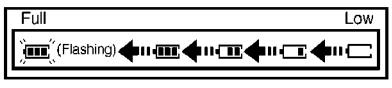
3.3.1. Installing the Batteries in the Handset

- If the rechargeable batteries are not inserted correctly, the handset will not work.





3.3.2. Battery Charge



At the time of shipment, the batteries are not charged. To charge, place the handset on the base unit. Please charge the batteries for approximately 10 hours before initial use. During charging, the battery icon is as shown above.

3.3.3. Battery Strength

You can check the present battery strength on the display.

Battery strength	Fully charged	Medium	Low	No power
Battery icon				(Flashing)

3.3.4. Recharge

When "▭" flashes or the unit beeps every 15 seconds, recharge the batteries.

3.3.5. Battery Information

After your batteries are fully charged:

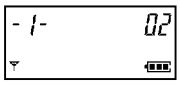
Operation	Ni-MH battery life (Included)	Ni-Cd battery life (optional)
While in use (Talk)	Up to about 20 hours	Up to about 12 hours (based on 800m/A per hour)
While not in use (Standby)	Up to about 160 hours	Up to about 100 hours

- Battery life may vary depending on usage conditions, such as:
- when viewing the Caller ID Caller List, and
- ambient temperature.
- Clean the handset charge contacts with a soft, dry cloth. Clean if the unit is subject to grease, dust or high humidity. Otherwise the batteries may not charge properly.
- If the batteries are fully charged, you do not have to place the handset on the base unit until "▭" flashes. This will maximize the battery life.
- The batteries cannot be overcharged.

4. OPERATIONS

4.1. Turning the Power On

1. **Press and hold** .
   - After all characters briefly appear, a confirmation tone sounds. The display will change to the standby mode when the button is released.
   - The current connected base unit number is displayed (- 1-).
   - The number of New Caller ID calls received are displayed (eg. 02).
   - You can choose whether to display the base unit number, handset number, clock or no display in the standby mode.



4.2. Making a Call

1. **Press** .
2. **Dial a phone number**
   The dialled number is displayed.
   (If a number is entered incorrectly, press).

After a few seconds, the display will start showing the length of the call.

4.3. Terminating a Call

1. **To hang up, press** .
   - The handset will return to the standby mode.
   - The dialled number is stored in the redial memory.

4.4. Answering Call

1. **Press** .
   - You can also answer a call by pressing any dialling button 0 to 9, * or # (-Any Key Answer).

After a few seconds, the display will start showing the length of the call.

4.5. Turning the Power Off

Make sure that the unit is in the standby mode.

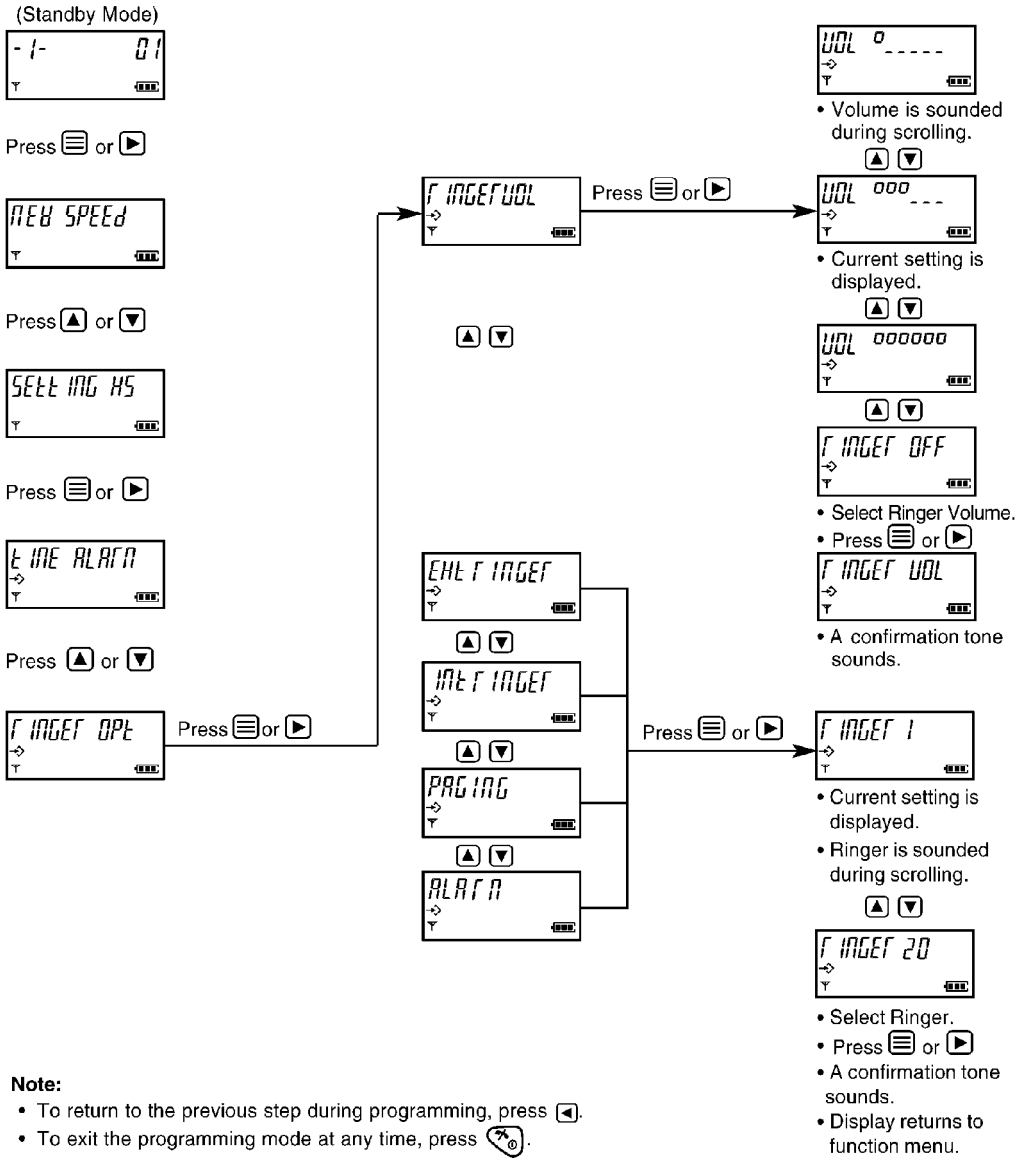
1. **Press and hold until a long beep sounds**
   - The display will go blank.
     (On location of the handset in base unit, the battery icon will display even after power off).

4.6. Setting Ringer Options

Within the Ringer Option menu, it is possible to program the following:

- **Select the Handset Ringer Volume (RINGER VOL) (6 levels available plus OFF (RINGER OFF)).**
- **Select the Ringer Pattern for External Incoming Call (EXT RINGER).**
- **Select the Ringer Pattern for Internal Call (INT RINGER).**
- **Select the Ringer Pattern for Paging Tone (PAGING).**
- **Select the Ringer Pattern for Alarm Tone (ALARM).**

} (20 patterns available).



Note:

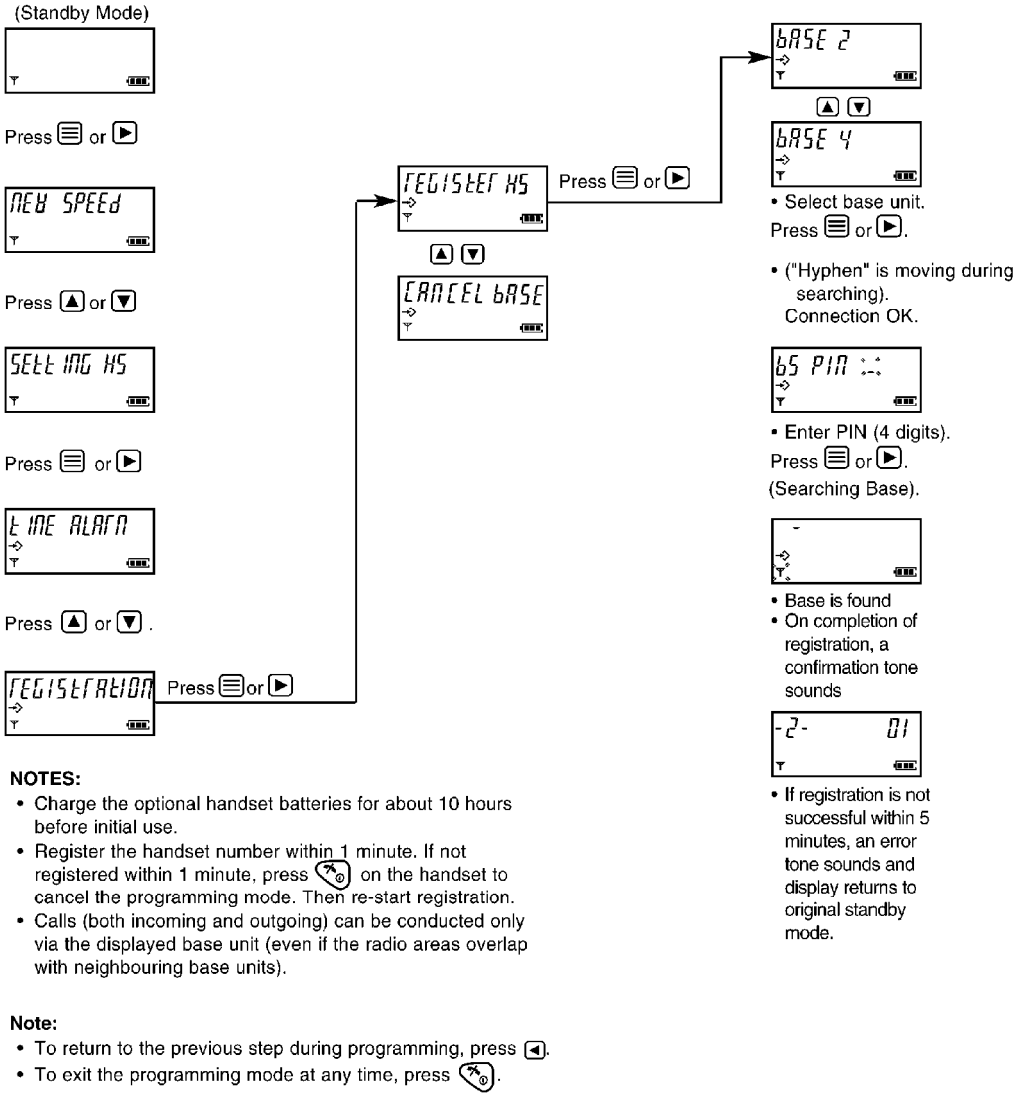
- To return to the previous step during programming, press ◄.
- To exit the programming mode at any time, press .

4.7. Registration

• Registering a Handset to a Base Unit (REGISTER HS)

The handset supplied with the base unit is already registered. If an optional handset/base unit is purchased, the following procedure needs to be carried out before initial use.

Press and Hold •)) on base unit for 10 secs. A confirmation tone sounds.



NOTES:

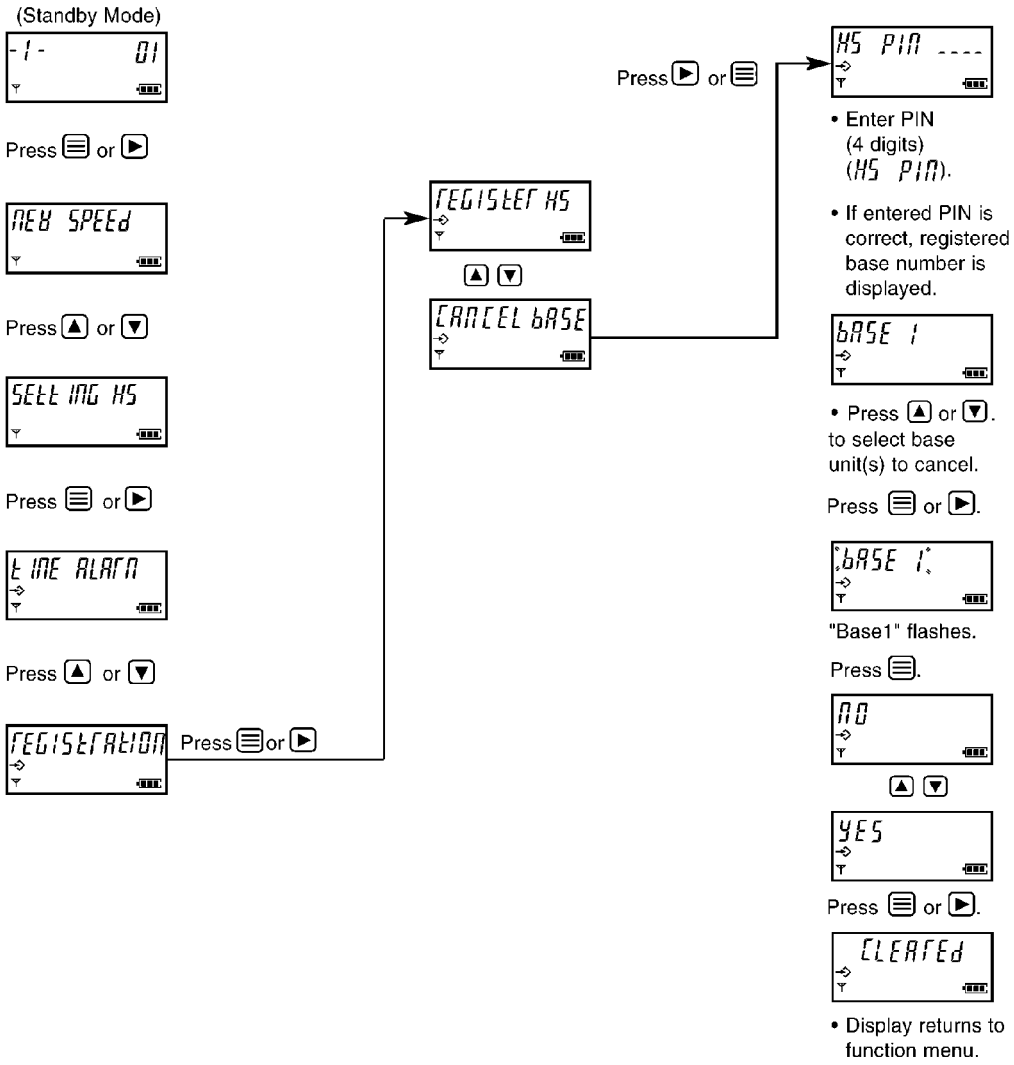
- Charge the optional handset batteries for about 10 hours before initial use.
- Register the handset number within 1 minute. If not registered within 1 minute, press ⏻ on the handset to cancel the programming mode. Then re-start registration.
- Calls (both incoming and outgoing) can be conducted only via the displayed base unit (even if the radio areas overlap with neighbouring base units).

Note:

- To return to the previous step during programming, press ◀.
- To exit the programming mode at any time, press ⏻.

• **Cancelling a Base Unit (CANCEL BASE)**

If another handset is out of range and/or its power is OFF when 'Cancelling a Handset', the previous base unit number will still remain in the cancelled handset.
Therefore, you need to cancel the base unit registered **in the cancelled handset**.



Note:

- To return to the previous step during programming, press .
- To exit the programming mode at any time, press .

4.8. Select Base Unit

• **Automatic Base Unit Access (AUTO)**

The handset automatically selects a registered base unit.

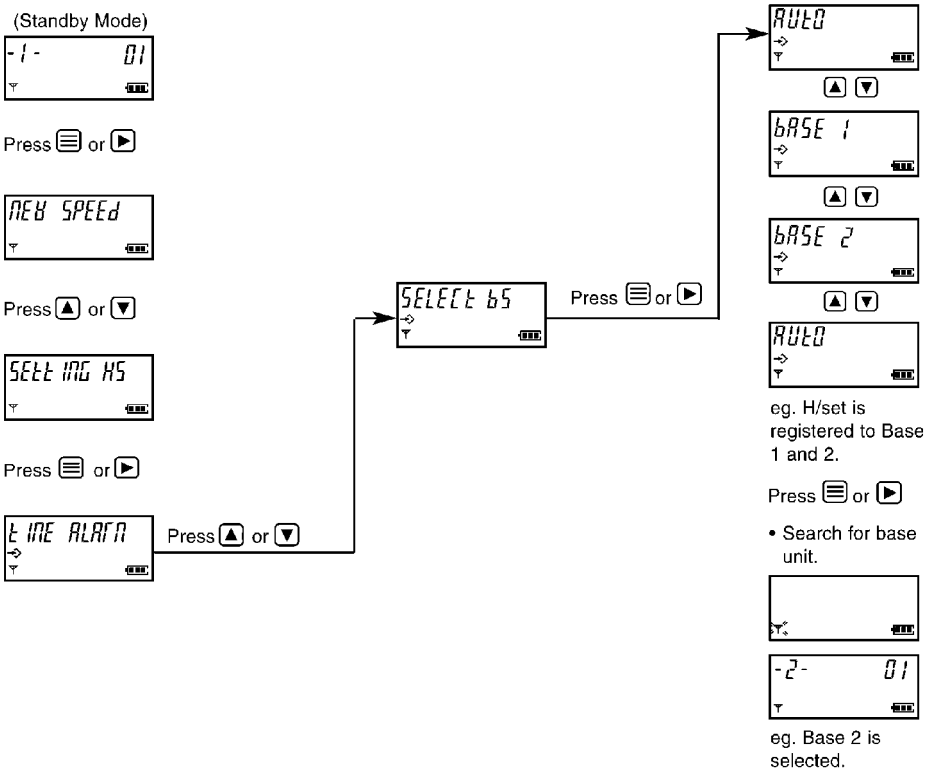
- When the handset moves to another base unit radio area, it loses contact with the previous base unit and automatically accesses the new base unit.
- If the handset is in the overlap area between several base unit radio areas, the handset will access the nearest base unit.

Specified Base Unit Access eg. (BASE 1)

You can only select one registered base unit (1 to 4) you want to operate (SELECT BS).

- You can choose the base unit/telephone line where you can make/receive calls.

The factory pre-set is 'Automatic Base Unit Access'. To select the desired base unit, program as follows:

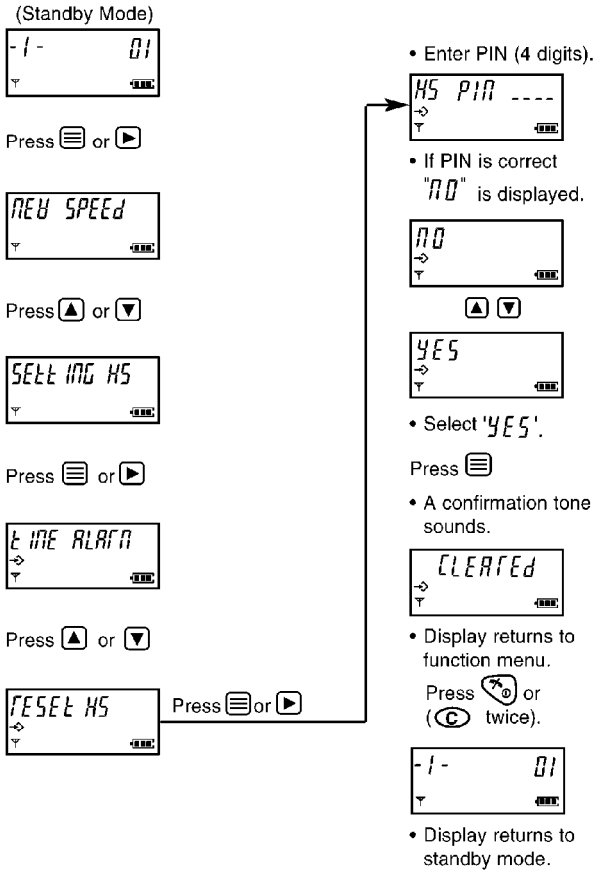


Note:

- To return to the previous step during programming, press .
- To exit the programming mode at any time, press .

4.9. Reset Handset

This function enables the handset to clear the following settings at one time.
They will return to their initial settings.



Function	Initial Setting
Time Alarm Mode	OFF
Alarm Time	Clear
Handset Ringer Volume	3
Handset External Ringer Pattern	1
Handset Internal Ringer Pattern	1
Handset Paging Tone Pattern	1
Handset Alarm Tone Pattern	1
Key Tones	ON
Call Waiting Tone	ON
Range Warning Alarm	OFF
Battery Low Alarm	ON
Standby Mode Display	Base Unit Number
Talk Mode Display	Length of the Call
Call Prohibition	OFF
Direct Call Mode	OFF
Direct Call Number	Clear
Handset Password	0000
Auto Talk	OFF
Base Unit Access	Automatic Base Unit Access
Handset Receiver Volume	2
Redial Memory	All Clear

Note:
- To return to the previous step during programming, press ◀.
- To exit the programming mode at any time, press ⏻.

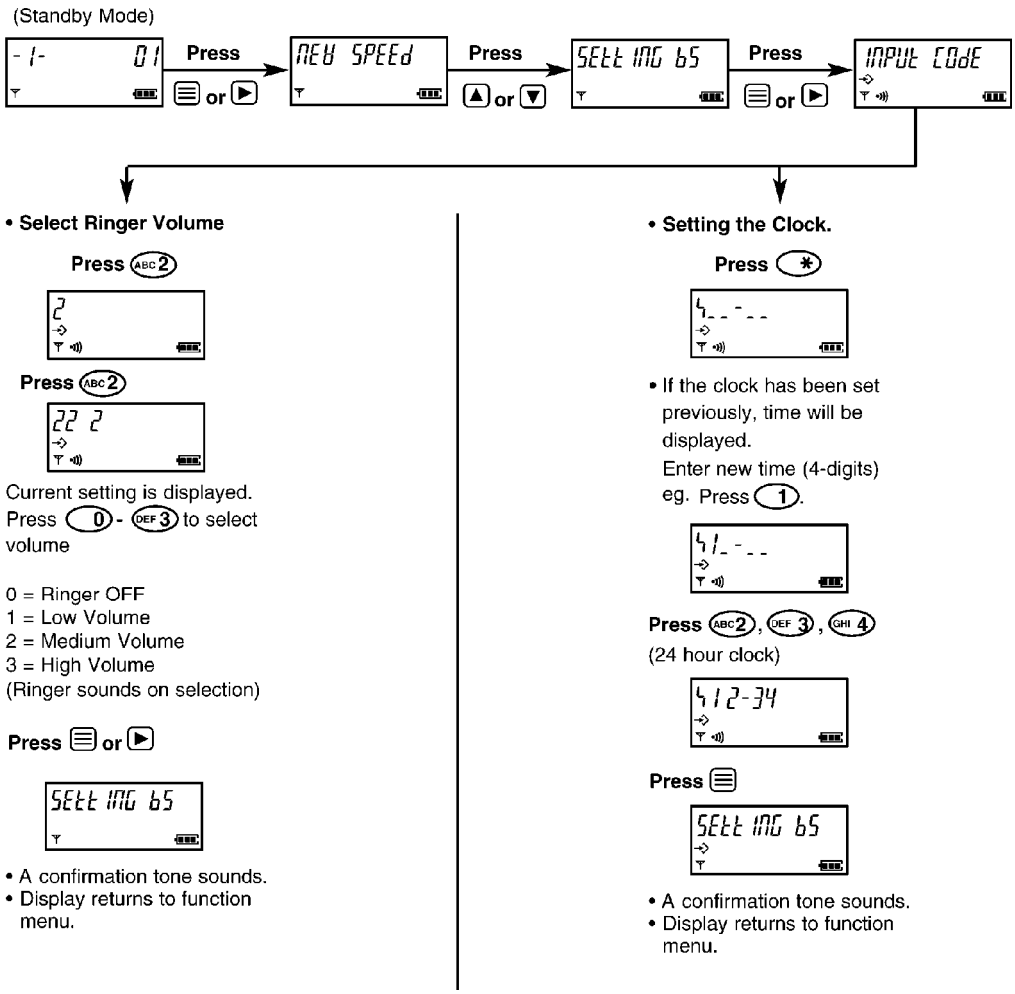
4.10. Programmable Functions (ON the Base Unit)

4.10.1. Select the Base Unit Ringer Volume

4 levels are available. The factory pre-set is MEDIUM. When set to OFF, the base unit will not ring.

4.10.2. Setting the Clock

To set clock, please program as below. The clock can be displayed as an option in standby mode. After a power failure the clock will need re-setting. Clock may take up to one minute to appear on the handset display.

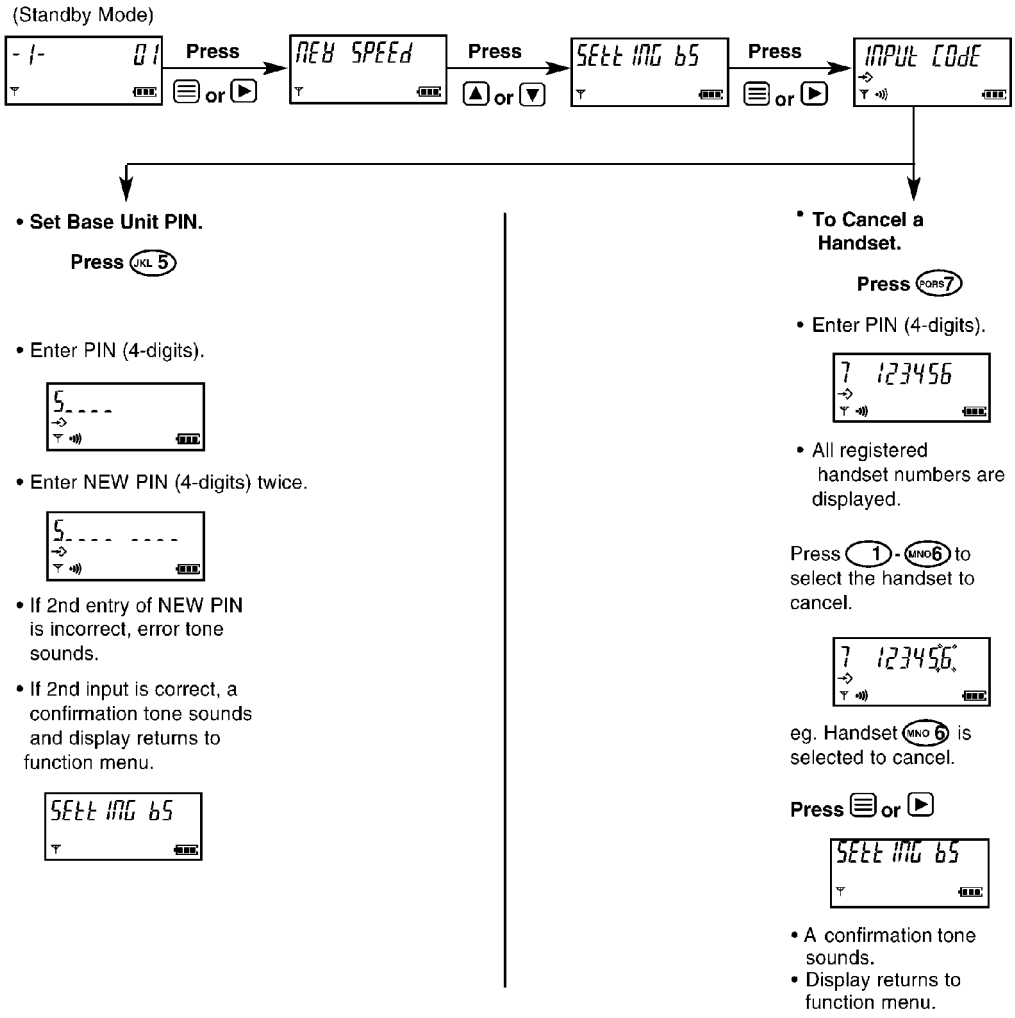


4.10.3. Set Base Unit PIN

You can program a 4 digit password for the base unit. The factory pre-set is 0000. Changing the password may prevent the unauthorised use of your unit by another person.

4.10.4. Cancelling a Handset

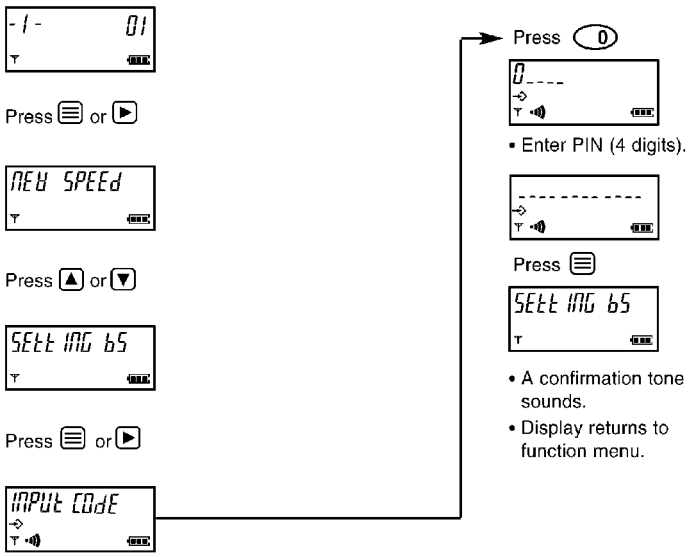
Each handset can cancel itself or another handset.



4.10.5. Reset Base Unit

This function enables the base unit to clear the following settings at one time.
They will return to their initial settings.
The following are factory default settings of the Base Unit.

Parameter	Default Setting
Bell Selection	All Handsets
Dialling Mode	Tone
Earth/Flash	Flash
Flash Timing	200 m seconds
Pause Timing	3 seconds
ARS Setting	OFF
Carrier Code	All Clear
Area Code	All Clear
AKZ Setting	OFF
AKZ	All Clear
HAKZ Setting	OFF
HAKZ	All Clear
Call Restricted Handset(s)	All Clear
Call Restriction number(s)	All Clear
Base Unit PIN	0000
Base Unit Ringer V	Medium
Clock	No setting



5. CIRCUIT OPERATION (BASE UNIT)

BLOCK DIAGRAM BASEBAND SECTION AND LINE INTERFACE (BASE UNIT)

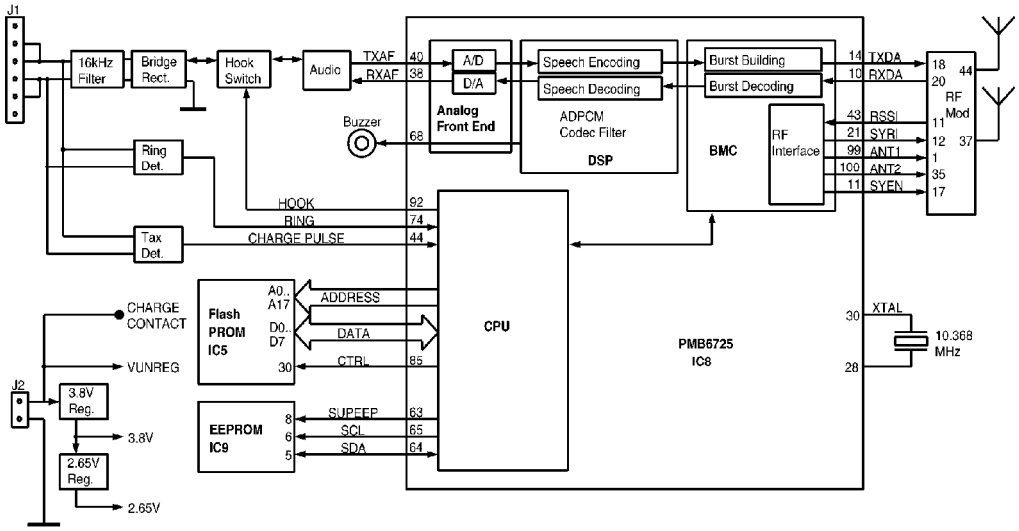


Fig. 17

5.1. THE BASE-BAND SECTION

5.1.1. INTRODUCTION (SEE Fig. 17)

The base-band section consists of a base-band integrated circuit (BBIC), a Flash PROM and an EEPROM.

5.1.2. THE BASE-BAND INTEGRATED CIRCUIT (BBIC)

The PMB6725 (IC8) is a CMOS device designed to handle all the audio, signal and data processing needed in a DECT base unit. It contains a "burst mode controller" which takes care of DECT specific physical layer and radio section control. It also contains an ADPCM codec filter used for speech encoding and decoding in the DSP section, a general purpose microcontroller, various other ADC's, DAC's, timers and power control circuitry.
The BBIC interfaces to its external PROM (IC5) via a data/address/control bus. It connects to the EEPROM via a serial interface, and a second serial interface is used during manufacture and service to connect to an external computer.

5.1.3. FLASH PROM (SEE Fig. 18)

The 2 Mbit (IC5) Flash PROM contains the operational firmware for the microcontroller. It is interfaced to the data/address/control bus using address lines A0 to A17, data lines D0 to D7, and chip select (pin 30), output enable (pin 32), and write (pin 7).

5.1.4. EEPROM (SEE Fig. 18)

The electrically erasable PROM PQVIT2432WM6 (IC9) is used to store all the temporary operating parameters for the base (see EEPROM LAYOUT). It uses a two-line serial data interface with the BBIC, with bi-directional data on pin 5 (TP104), and clock on pin 6 (TP103).

5.1.5. CLOCK GENERATION (SEE Fig. 18)

A single clock generator in the BBIC uses an external crystal X1 to derive all clock frequencies used in the base. The crystal is tuned to the exact frequency of 10.368 MHz during manufacture. The BBIC provides a reference clock signal SYRI (pin 21, TP101) which is used to drive the PLL circuitry in the RF module. The basic data rate for TXDA (pin 14) and RXDA (pin 10) is 1.152 Mbits/s, which is 10.368MHz divided by 9.

5.1.6. LOCATOR KEY (SEE Fig. 18)

The “Locator (Page)” button is connected to pin 51 (TP109) of the IC8. When pressed the base transmits a message to the handset, which then beeps.

5.1.7. FACTORY SERIAL PORT (SEE Fig. 18)

In order to communicate with the base band section during manufacture and servicing (using a PC) a serial data link has been provided.
Serial data input/output is provided through the SDA terminal (J102). The data is clocked through using the SCL terminal (J103). A ground terminal is provided by J104.
To invoke the external communication mode the MODE_SEL terminal (J101) must be connected to the 2.65V terminal (J100).
The serial port terminals J100 to J104 are connected to by means of test probe pads on the ground plane side of the pcb.

5.1.8. BUZZER CIRCUIT (SEE Fig. 18)

A square-wave signal from IC8 pin 68 is used to sound the buzzer via switching transistor T6 (TP98). Various tones and cadences are used dependent on function. Buzzer volume is varied by changing the duty cycle of the drive waveform. D16 provides quenching of back-emf generated when T6 turns off.

5.1.9. AUDIO PATH-RX AUDIO-LINE INPUT (SEE Fig. 18)

Audio from the line interface TXAF (TP97) enters the BBIC on pin 40. The audio signal passes through the analogue part of the BBIC where it is amplified and converted to a digital audio stream signal. The burst mode controller processes this stream performing encryption and scrambling, adding the various other fields to produce the GAP standard DECT frame, assigning to a time slot and channel etc. to emerge on pin 14 as TXDA.

5.1.10. AUDIO PATH - TX AUDIO - LINE OUTPUT (SEE Fig. 18)

Audio from the receiver RXDA enters the BBIC on pin 10 as GAP standard DECT frames. It passes through the decoding section burst mode controller where it separates out the frame information and performs de-encryption and de-scrambling as required. It then goes to the DSP where it is

turned back into analogue audio. This is amplified by the analogue front end and emerges at pin 38 - i.e. the RXAF signal of the line interface.

Circuit Diagram

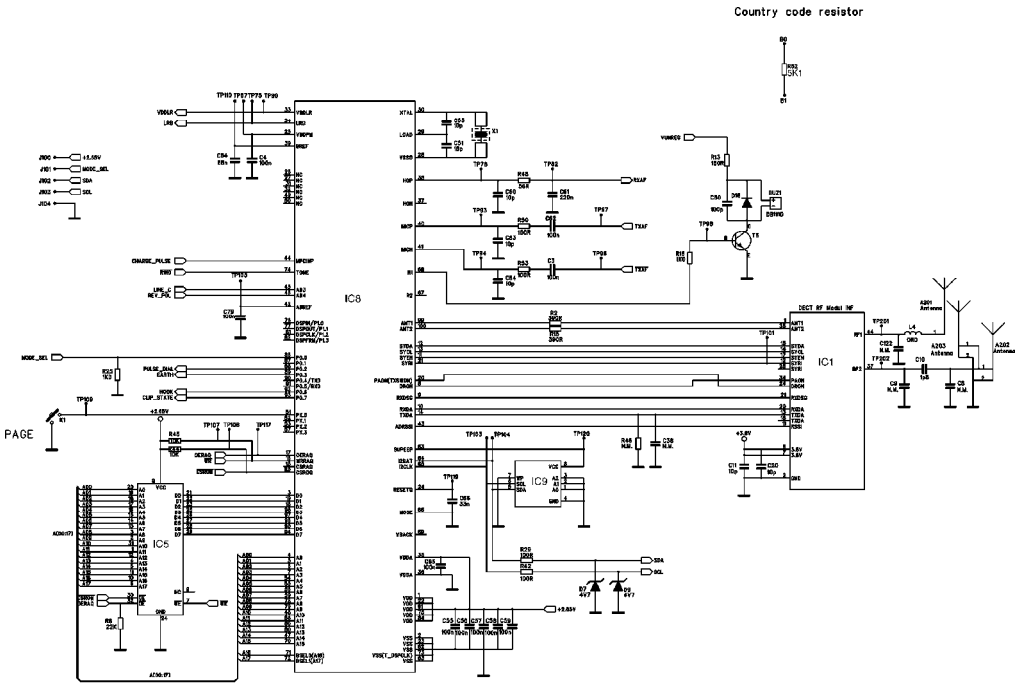


Fig.18

5.2. THE LINE INTERFACE SECTION (SEE BLOCK DIAGRAM Fig. 17)

5.2.1. INTRODUCTION

This section consists of the telephone line interface, bell detector, charge-pulse detector, hook switch, pulse dialing circuits, audio circuits, DC mask & line impedance circuits, power supplies, and battery charger circuits.

5.2.2. TELEPHONE LINE INTERFACE (SEE Fig. 19)

The telephone line is connected to a bridge rectifier D8. Surge suppressor SA3 protects against excessive line voltages. Test points are TP40 (A), TP26 (B). A 16 kHz notch filter L3 and L5 block the 16 kHz “charge pulse” signal from the rest of the line input circuitry. Bridge rectifier D8 provides for lines of either polarity. The output of D8 is “Line +” (TP39) and “Line -” which is ground.

5.2.3. BELL DETECTOR (SEE Fig. 19)

The AC ringing signal is detected by phoptocoupler IC2, using its internal diode in conjunction with D4. DC from the line is blocked by C2. The other components D2, D3, and R3 reduce current and increase the circuit impedance in line with national requirements. When ringing is detected IC2 will turn on, and the RING line will be dragged to a low voltage.

5.2.4. CLIP CIRCUITS (SEE Fig. 19)

The CLIP signal is detected by IC3 and sent to the BBIC through the /TXAF line as a square waveform. The CLIP_STATE signal from the BBIC is used to provide a CLIP impedance through a combination of components selected from R85, R86, C93, C37, C97 and R1. The combination depends upon the CLIP requirements of the specific country - often there is no requirements for the CLIP_STATE impedance.
T10 disables the CLIP signal during the off-hook condition.

5.2.5. LINE SENSE (SEE Fig. 19)

The line sense circuitry detects an inversion of the line when caller ID is ready to be sent by the exchange. The BBIC will invoke a CLIP_STATE, by sweitching R85 across the line (through T4). The detection signal comes from the REV_POL line when pin 3 of J7 is positive, or rom the LINE_C signal when pin 4 is positive.

Circuit Diagram

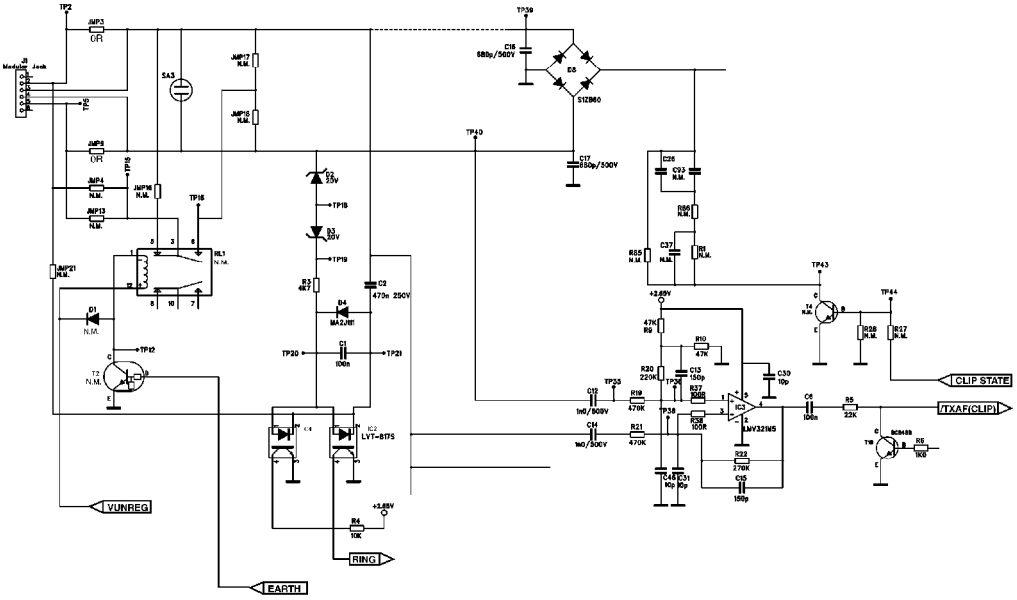


Fig.19

5.2.6. HOOKSWITCH AND PULSE DIALING (SEE Fig. 20)

T8 is the hookswitch, driven by T9. When the phone is “off-hook”, the HOOK control signal from the BBIC will be a high logic level (+3V), and both transistors will be on, thus T8 will “loop” the line. The zenner diode D10 protects transistors T11 to T13 against transient line voltages.

5.2.7. AUDIO CIRCUITS (SEE Fig. 20)

The line output signal from the BBIC RXAF is amplified by T13. The RXAF line is DC coupled to T13 thus making it work as a current limiter (typically < 8mA). The emitter load of T13 is complex to achieved the correct frequency response, since the line load is also complex.
The line input signal TXAF is taken from the junction of R41 and R70. Phase cancellation of the

line output audio occurs at this point, so that only incoming line audio should be passed to the BBIC on TXAF.

Circuit Diagram

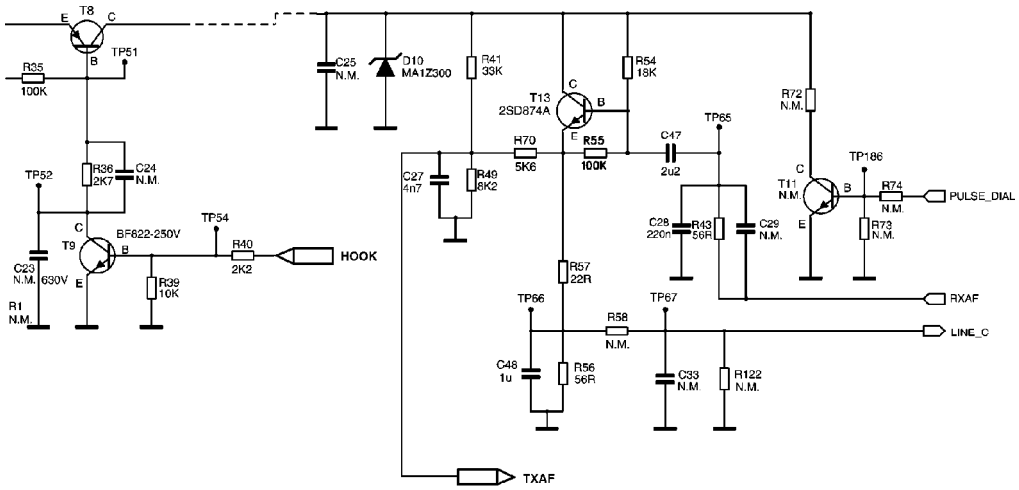


Fig. 20

5.2.8. POWER SUPPLIES (SEE Fig. 21)

The AC adaptor for the KX-TCD700 provides unregulated DC through J2 for the handset charge terminal, the 3.8V regulator (IC7) and the Relay coil (RL1) when fitted.
The 3.8V supply from IC7 is used for the RF module, and is further reduced by T7 to 2.65B for the BBIC supply.
R17, 18 and 28 provide short circuit/over current protection at the handset charge terminal.

Circuit Diagram

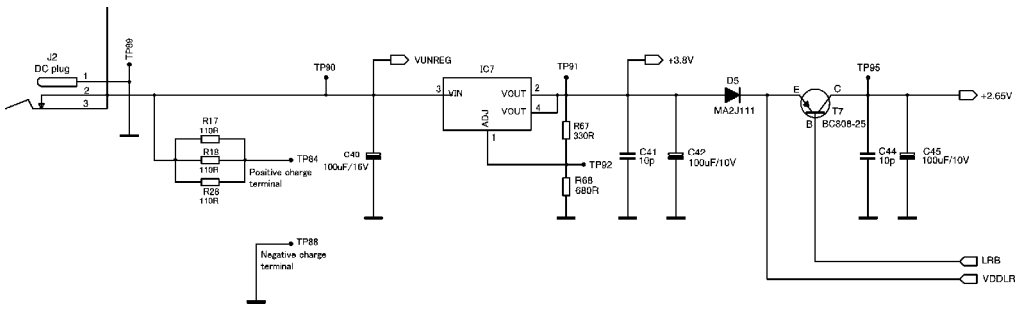


Fig. 21

5.3. RF MODULE

BLOCK DIAGRAM RF MODULE

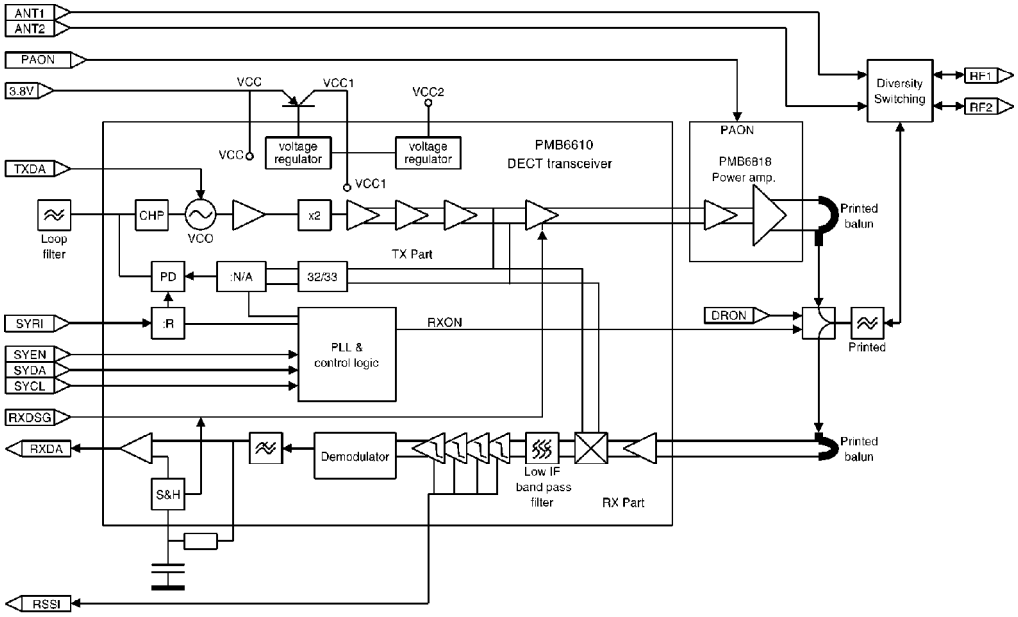


Fig. 22

5.3.1. RF MODULE (SEE BLOCK DIAGRAM Fig.22)

The RF Module consists of two main components: the PMB6610 transceiver and the PMB6818 power amp.
In the transceiver the 10.368MHz clock signal SYCL is multiplied to around 1.9GHz using PLL (Phase Locked Loop) control.
The TXDA signal is used to control the modulation of this frequency by up to +/- 400kHz.
Received signals are demodulated, filtered and sent to the BBIC via the RXDA line.
The RSSI (Radio Signal Strength Indicator) signal enables the implementation of diversity switching whereby two antennae can be mounted in different orientations and their signals compared. The one with better reception can be selected by the BBIC using the ANT1 and ANT2 lines.

6. CIRCUIT OPERATION (HANDSET)

BLOCK DIAGRAM BASEBAND SECTION (HANDSET)

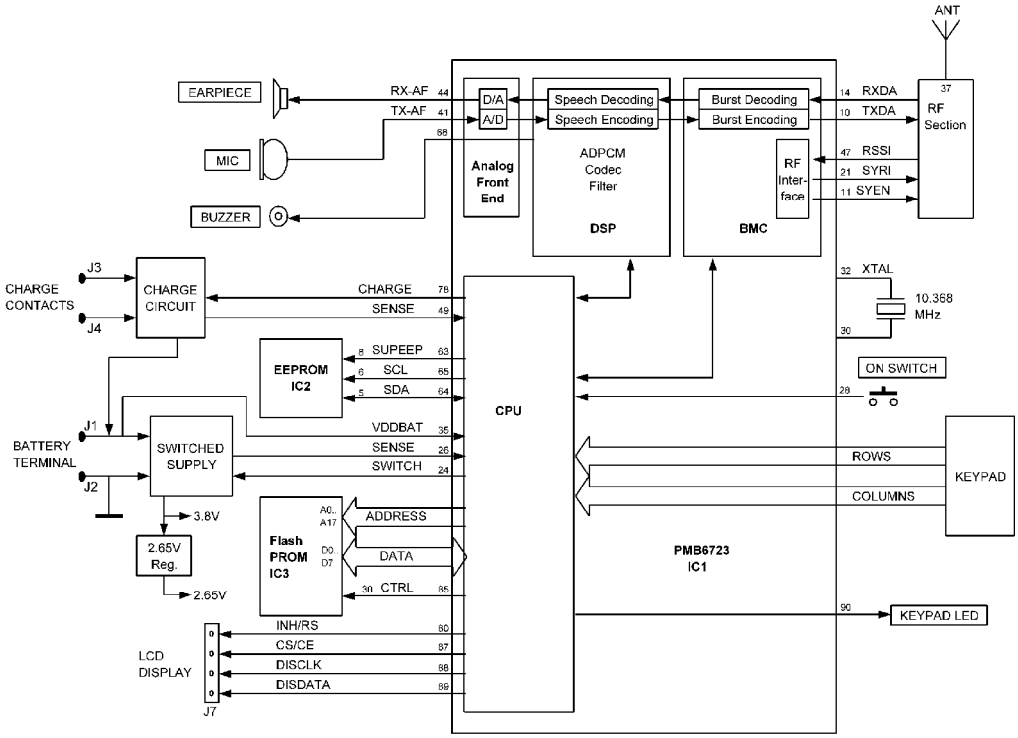


Fig. 23

6.1. THE BASE BAND SECTION

6.1.1. INTRODUCTION

The base-band section consists of a base-band integrated circuit (BBIC), a Flash PROM, an EEPROM, an LCD Display, a Microphone, an Earpiece, and power supply/battery management circuits.

6.1.2. THE BASE-BAND INTEGRATED CIRCUIT (BBIC)

The PMB6720 (IC1) is a CMOS device designed to handle all the audio, signal and data processing needed in a DECT handset. It contains a "burst mode controller" which takes care of DECT specific physical layer and radio section control. It also contains an ADPCM codec filter used for speech encoding and decoding in the DSP section, a general purpose microcontroller, various other ADC's, DAC's, timers and power control circuitry.
The BBIC interfaces to its external PROM (IC3) via a data/address/control bus. It connects to the EEPROM (IC2) via a serial interface (SDA and SDC). This serial interface is also used during manufacture and service to connect to an external computer.

6.1.3. FLASH ROM (SEE Fig. 24)

The 1Mbit Flash PROM IC3 contains the operational firmware for the BBIC's general purpose microprocessor. It is interfaced to the BBIC using address lines A0 to A17, data lines D0 to D7, and control lines CE (Chip Enable), WE (Write Enable) and OE (Output Enable).

6.1.4. EEPROM (SEE Fig. 24)

The electrically erasable PROM IC2 is used to store all the temporary operating parameters for the handset (see EEPROM LAYOUT). It uses a two-line serial data interface with the BBIC, with bi-directional data on IC2 pin5 (TP52), and a 45 kHz clock on pin6 (TP53).

6.1.5. FACTORY SERIAL PORT (SEE Fig. 24)

In order to communicate with the handset during manufacture and servicing (using a PC) a serial data link has been provided.
Serial data input/output is provided through the I2DAT port (pin 64). The data is clocked through using the I2CLK pin (65). Test probe pads SDA and SDC are provided for external communications with I2DAT and I2CLK respectively.
To invoke the flash PROM download mode the MODE_SEL test pad must be connected to the 2.65V pad.
A Ground reference test pad is also provided.

Circuit Diagram

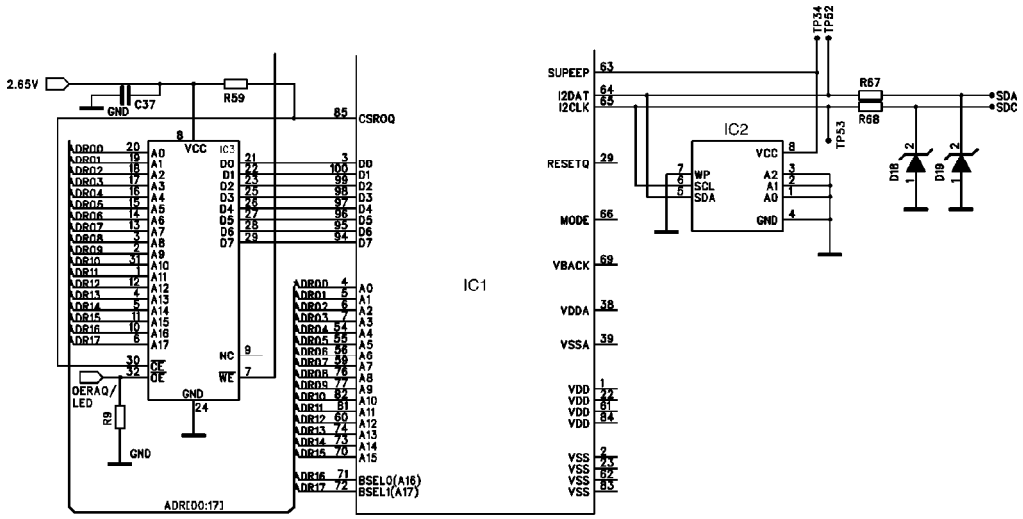


Fig. 24

6.1.6. BUZZER CIRCUIT (SEE Fig. 25)

A square-wave signal from IC1 pin 68 is used to sound the buzzer via switching transistor T4. Various tones and cadences are used dependent on function. Buzzer volume is varied by changing the duty cycle of the drive waveform. D10 provides quenching of back-emf generated when T4 turns off.

6.1.7. AUDIO PATH - TX AUDIO (SEE Fig. 25)

The audio signal from the microphone (TP23) enters the BBIC at pin 44. RF decoupling and signal conditioning are provided by C17, R21, C14 and C25.
In the BBIC the signal passes through the analogue section where it is amplified and converted

to a digital audio stream signal. The burst mode controller processes this stream performing encryption and scrambling, adding the various other fields to produce the GAP standard DECT frame, assigning to a time slot and channel etc. to emerge on pin 14 as TXDA.

6.1.8. AUDIO PATH - RX AUDIO (SEE Fig. 25)

Audio from the receiver RXDA enters the BBIC on pin 10 as GAP standard DECT frames. It passes through the decoding section burst mode controller where it separates out the frame information and performs de-encryption and de-scrambling as required. It then goes to the DSP where it is turned back into analogue audio. This is amplified by the analogue front end and emerges at pin 40 and 41. The telephone speaker is driven directly from the BBIC output ports.
On 700 models the ring alarm is provided by means of a buzzer BUZ1 which is switched by T4 from pin 68. IC5, J6 and the HF_AM1 are not fitted.
705 models use the hands-free loudspeaker at SP+ and SP- to generate the ring alarm, so the buzzer BUZ1 is not fitted. IC5 is used to switch off the telephone loudspeaker while the HF_AM1 amplifier is used to drive the hands-free loudspeaker. They are selected mutually exclusively using the SP_CTR line from pin 93 of the BBIC. The 2.5mm headset jack is also exclusive to the 705 model.

6.1.9. CLOCK GENERATION (SEE Fig. 25)

A single clock generator in the BBIC uses an external crystal X1 to derive all clock frequencies used in the handset. The crystal is tuned to the exact frequency of 10.368 MHz during manufacture.
The BBIC provides a reference clock signal SYRI (pin 21, TP101) which is used to drive the PLL circuitry in the RF module. The basic data rate for TXDA (pin 14) and RXDA (pin 10) is 1.152 Mbits/s, which is 10.368MHz divided by 9.

Circuit Diagram

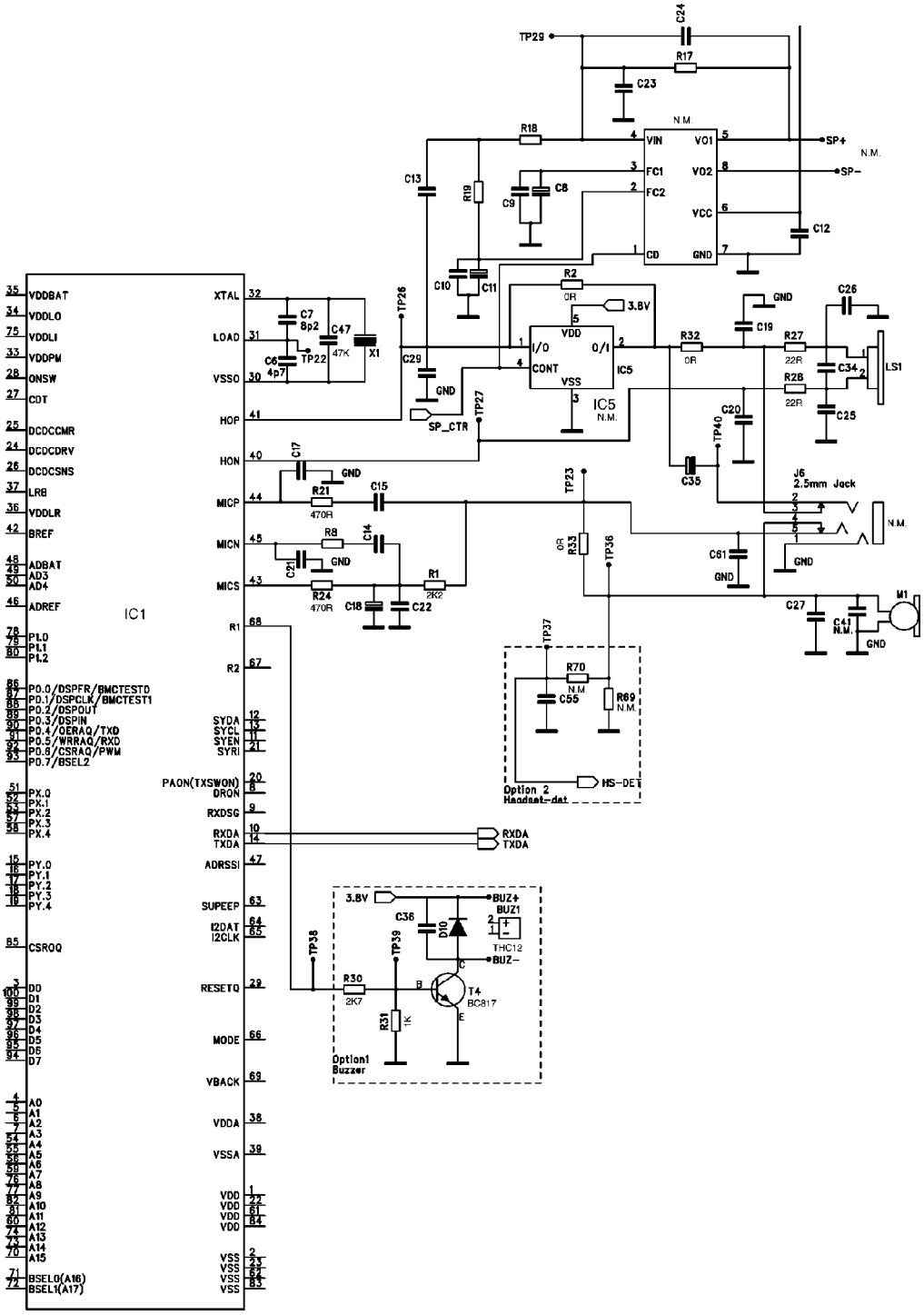


Fig. 25

6.1.10. KEYBOARD (SEE Fig. 26)

The keyboard “On” button is connected directly to pin 33 and 28 of the BBIC. When pressed it turns the handset on and off. All other keys are connected in a row/column matrix. They are scanned in five rows using scan pulses (only active when keys are pressed) from IC1 pins 15 to 19. The five key matrix columns are input to the BBIC on pins 51, 52, 53, 57 and 58.

6.1.11. LCD DISPLAY, AND DISPLAY DRIVER (SEE Fig. 26)

The LCD display receives data via a serial interface. Serial data is sent to the display on pin 4 of the J7 socket, with control lines at pin1 thru 3.

Circuit Diagram

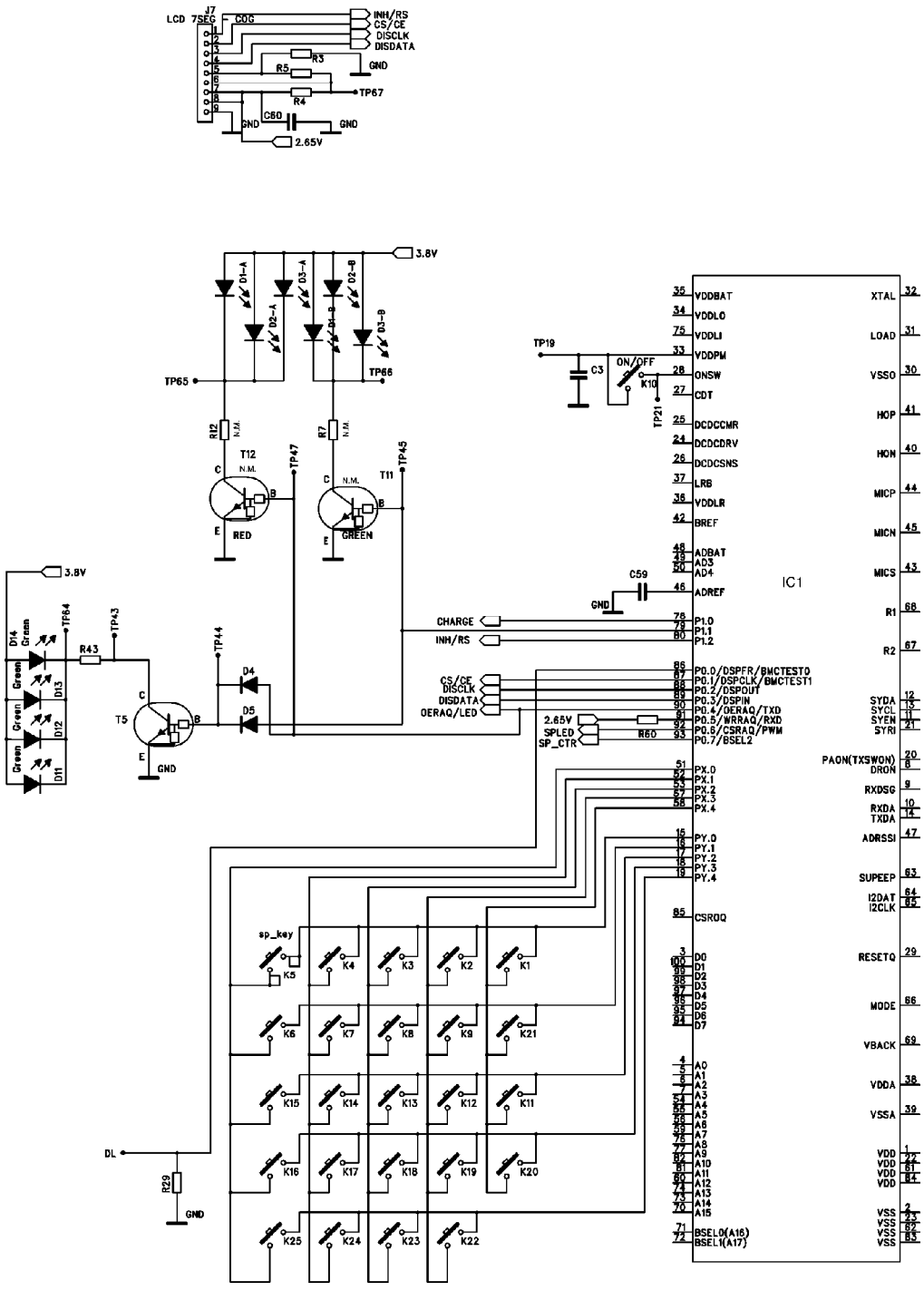


Fig. 26

6.1.12. BATTERY SUPPLY (SEE Fig. 27)

A switch mode boost converter is used to provide a 3.8V supply from the battery. This supply is sensed by the BBIC through pin 26 (TP14) so that the switching rate can be controlled by a FET (T3) driven from pin 24 (TP13). A resistor on the Source of the FET provides a current sense at pin 25 (TP12).
T3 switches the current through L1. When T3 switches off the back emf conducts through D16 and charges the reservoir cap C4.

6.1.13. 2.65V REGULATOR (SEE Fig. 27)

A 2.65V supply is provided for the BBIC and is regulated by the BBIC's on board control signal LRB (pin 37).
This reference is fed to the base of T6 to keep the "VREG+" line at 2.65V.

6.1.14. BATTERY CHARGING CIRCUIT (SEE Fig. 27)

The supply for the battery comes from the charge terminals at J3 and J4. Battery charge rate is controlled by switching the current through T7 such that the average charging current is 170mA. The current flow is monitored at pin 49 of the BBIC by measuring the voltage across R56.
D21 protects against the high voltage present on the charge contacts (J3 and J4) when there is no battery in the handset. R42 and C50 provide a signal to the BBIC (pin 27) to detect that the handset has been placed on the base charger.

Circuit Diagram

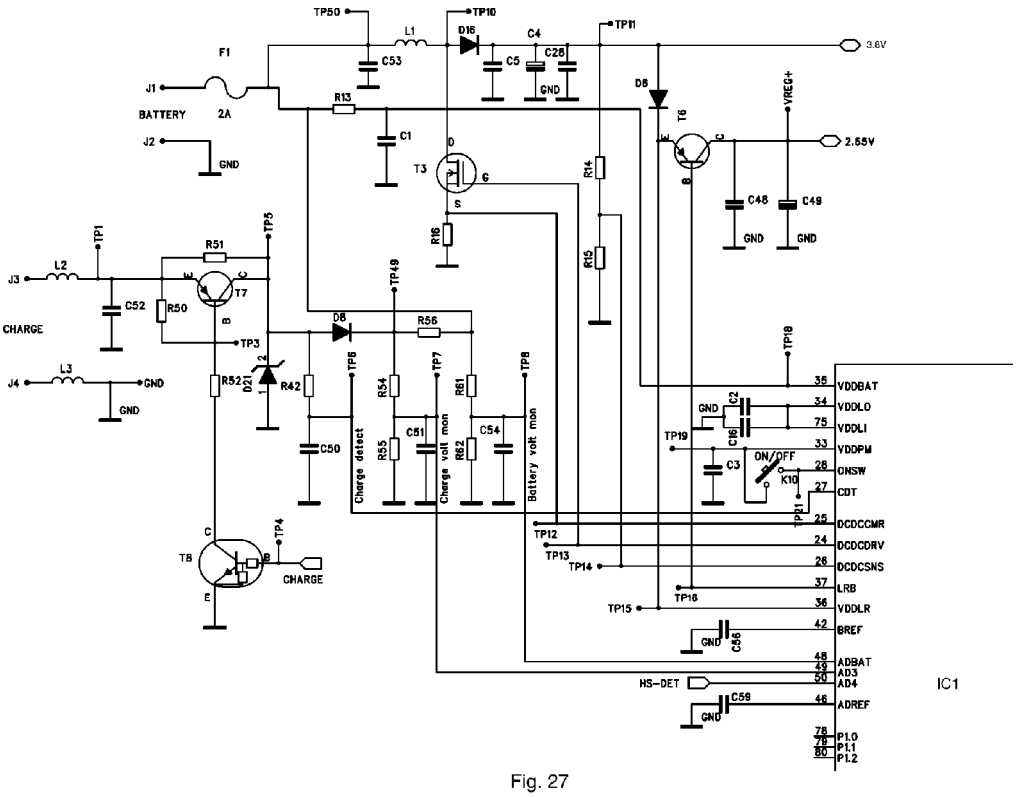


Fig. 27

6.2. RF SECTION

6.2.1. BLOCK DIAGRAM RF SECTION (HANDSET)

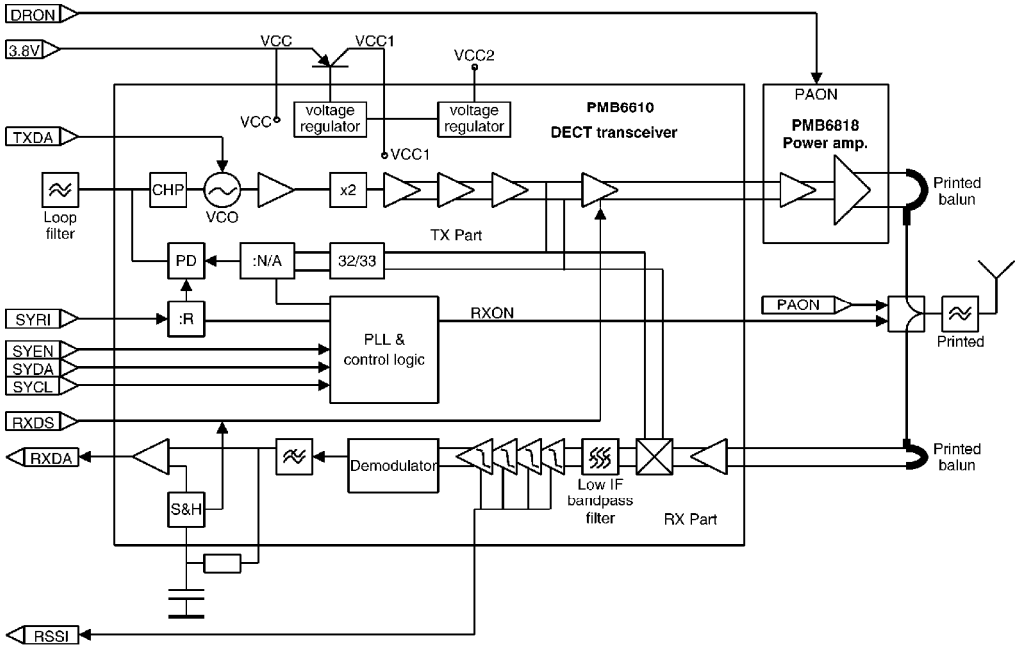


Fig. 28

The RF section consists of two main components: The PMB6610 transceiver and the PMB6618 power amp.
In the transceiver the 10.368MHz clock signal SYCL is multiplied to around 1.9GHz using PLL (Phase Locked Loop) control. The TXDA signal is used to control the modulation of this frequency to 1.87GHz to 1.93GHz.
Received signals are demodulated, filtered and sent to the BBIC via the RXDA line.

7. CHECK PROCEDURE (BASE UNIT)

7.1. EQUIPMENT REQUIRED

- CMD60
  TEST MODE: FP
  CONFIG MENU: SIGN SCRAMBLE: OFF
  MANUAL TEST: TRAFFIC SLOT: 4
  TRAFFIC CARRIER: 5
  RF LEVEL: -55Dbm

- Bell oscillator: 30V RMS, 23Hz
- Regulated power supply (bench supply): 9V, 1A
- DMM
- Ammeter
- Frequency counter
- Oscilloscope
- PC running in DOS mode. Type "SET RTX_LPT=1" to select LPT1 comms port
- EEPROM parallel communications adapter.
- Test software and Batch files for base unit:
  CONTTX.BAT, DEACTMAC.BAT, HOOKOFF.BAT, HOOKON.BAT, I2CMAIL.EXE, LINEIMP.BAT, RDEEPROM.BAT, RINGDET.BAT, SETFREQ.BAT, TESTMODE.BAT, DTMF_UP.BAT, DTMF_LO.BAT.
- Line/DTMF test set

Connect the 9V supply to the pcb at J2: pin 1 to -V and pin 2 to +V.
Connect the communications wires from the PC to test pads J104 (0V), J103 (CLK) and J102 (DATA).
Make sure that the current DOS directory contains the batch files listed above.

7.2. INITIAL POWER TESTS

1. **Turn on the 9V supply.**
2. **Check for approx. 100mA current on the 9V supply line.**
3. **Check the 3.8V supply rail at TP91. It must be 3.8V ± 0.2V.**
4. **Check the 2.65V supply rail at TP95. It must be 2.65V ± 0.2V.**

7.3. SET THE CLOCK FREQUENCY

1. **Turn on the 9V supply.**
2. **Enter "DEACTMAC" from the PC to switch off the RF unit.**
3. **Enter "CONTTX 0" to start continuous RF transmission.**
4. **Enter "RDEEPROM 00 00 0F" to display the first 15 hexadecimal bytes of the EEPROM.**
   The frequency adjustment value is displayed in the first two locations with the most significant byte (MSB) first.
5. **Connect the frequency counter probe to TP101, or pin12 of the RF module, to measure the SYRI signal from the BBIC.**
6. **The clock frequency should be within 10,368,000Hz ± 10Hz. If not then enter "SETFREQ nn nn" where nn nn are the clock frequency adjustment values. An increase in the value will lower the clock frequency and vice versa. The maximum value is 01 FF.**
7. **Switch off the 9V supply.**

7.4. LOOPBACK TESTS

1. Switch on the 9V supply.
2. Set the CMD60 to MANUAL TEST mode.
3. Set the CMD60 TRAFFIC CARRIER to 0.
4. Invoke the "TESTMODE" batch file from the PC.
5. Press ACCEPT RFPI and SETUP CONNECT on the CMD60.
6. Check the power (NTP): it must be between 20 and 25dBm.
7. Press MODULATION.
8. Set DATA TYPE to FIG 31.
9. Check frequency drift: must be 0 ± 35 kHz/ms.
10. Check frequency offset: must be 0 ± 40 kHz.
11. Check deviation or modulation (max ± B field) with data type "FIG 31": must be 270kHz to 380kHz.
12. Press Menu Up " ↑ " on the CMD60.
13. Press POWER RAMP.
14. Check that the burst fits the mask.
15. Press Menu Up " ↑ " on the CMD60.
16. Press BER.
17. Obtain the sensitivity by slowly reducing RF LEVEL until the BER falls below 1000ppm. The sensitivity is the RF LEVEL reading at this point. It must be < -88dBm.
18. Press Menu Up " ↑ " on the CMD60.
19. Press BEARER RELEASE and switch off the 9V supply.

Note:

These tests can also be repeated on TRAFFIC CARRIERS 5 and 9.

7.5. TELEPHONE LINE TESTS

1. Switch on the 9V power supply.
2. Connect a telephone cord from the base unit to the line/DTMF test set.
3. Enter "HOOKOFF" from the PC to invoke an off-hook condition.
4. Set the current limit to 40mA on the line simulator.

5. Enter "HOOKON" from the PC to invoke the on-hook condition.
6. Check that the line current has dropped to 0 ± 0.5mA.
7. Enter "HOOKOFF".
8. Use a DMM to test the off-hook voltage at TP50. It must be 6.0V ± 1.0V.
9. Enter "LINEIMP 1" at the PC to switch on the pulse-dialing impedance.
10. Check the DC voltage at TP50. It must be < 3.5V.
11. Enter "LINEIMP 0" at the PC to switch off the pulse-dialing impedance.
12. Enter "DTMF_UP" to make the base generate the upper DTMF frequency.
13. Check that the upper frequency is detected by the line/DTMF test set. Must be 1477Hz ± 1.5%.
14. Enter "DTMF_LO" to make the base generate the lower DTMF frequency.
15. Check that the lower frequency is detected by the line/DTMF test set. Must be 852Hz ± 1.5%.
16. Switch off the 9V power supply.
17. Disconnect the telephone line and reconnect the base to the Bell oscillator.
18. Switch on the 9V supply.
19. Enter "RINGDET" to check the ring detection status. The command returns a number to the PC display. "0" = no ring.
20. Switch the bell oscillator on to 23Hz, 30V RMS.
21. Send the batch file "RINGDET".
22. Check that the Number on the PC display has changed to "1".
23. Switch off the 9V power supply.

7.6. CHARGE CURRENT TESTS

1. Switch on the 9V power supply.

2. Connect an ammeter directly across the charge terminals (effectively short circuiting them).
3. Measure 240mA ± 10% through the meter.
4. Switch off the 9V power supply.

8. CHECK PROCEDURE (HANDSET)

8.1. EQUIPMENT REQUIRED

- CMD60
  TEST MODE: PP
  CONFIG MENU: SIGN SCRAMBLE: OFF
  MANUAL TEST: TRAFIC SLOT: 4
  TRAFFIC CARRIER: 5
  RF LEVEL: -55Dbm

- Regulated power supply (bench supply): 2.4V, 1A
- DMM
- Ammeter
- Frequency counter
- PC running in DOS mode. Type "SET RTX_LPT=1" to select LPT1 comms port
- EEPROM parallel communications adapter.
- Test software and Batch files for handset:
  CONTTX.BAT, DEACTMAC.BAT, I2CMAIL.EXE, RDEEPROM.BAT, WREEPROM.BAT, SETFREQ.BAT, TESTMODE.BAT, SETBASE.BAT, RESBASE.BAT

Connect the 2.4V supply to the pcb at J1 (+V) and J2 (0V).
Connect the communications wires from the PC to GND, SDA and SDC test pads.
Make sure that the current DOS directory contains the batch files listed above.

8.2. INITIAL POWER TESTS

1. Switch on the 2.4V supply.
2. Switch the handset on at the keypad.
3. Check for approx. 120mA current on the supply line for around 10s.
4. Check the 3.8V supply rail at TP11. It must be 3.8V ± 0.2V.
5. Check the 2.65V supply rail at the collector of transistor T6. It must be 2.65V ± 0.2V.
6. Switch off the 2.4V supply.

8.3. SET CLOCK FREQUENCY

1. Turn on the 2.4V supply.
2. Switch the handset on at the keypad.
3. Enter "DEACTMAC" from the PC to switch off the RF unit.
4. Enter "CONTTX 0" to start continuous RF transmission.
5. Check that the current consumption is approx. 220mA.
6. Enter "RDEEPROM 00 00 02" to display the two-byte frequency

adjustment value, MSB first.

7. Connect the frequency counter probe to TP24 to measure the SYRI signal from the BBIC.
8. The clock frequency should be within 10,368,000Hz ± 10Hz. If not then enter "SETFREQ nn nn" where nn nn are the clock frequency adjustment values. An increase in the value will lower the clock frequency and vice versa. The maximum value is 01 FF.
9. Switch off the 2.4V supply.

8.4. LOOPBACK TESTS

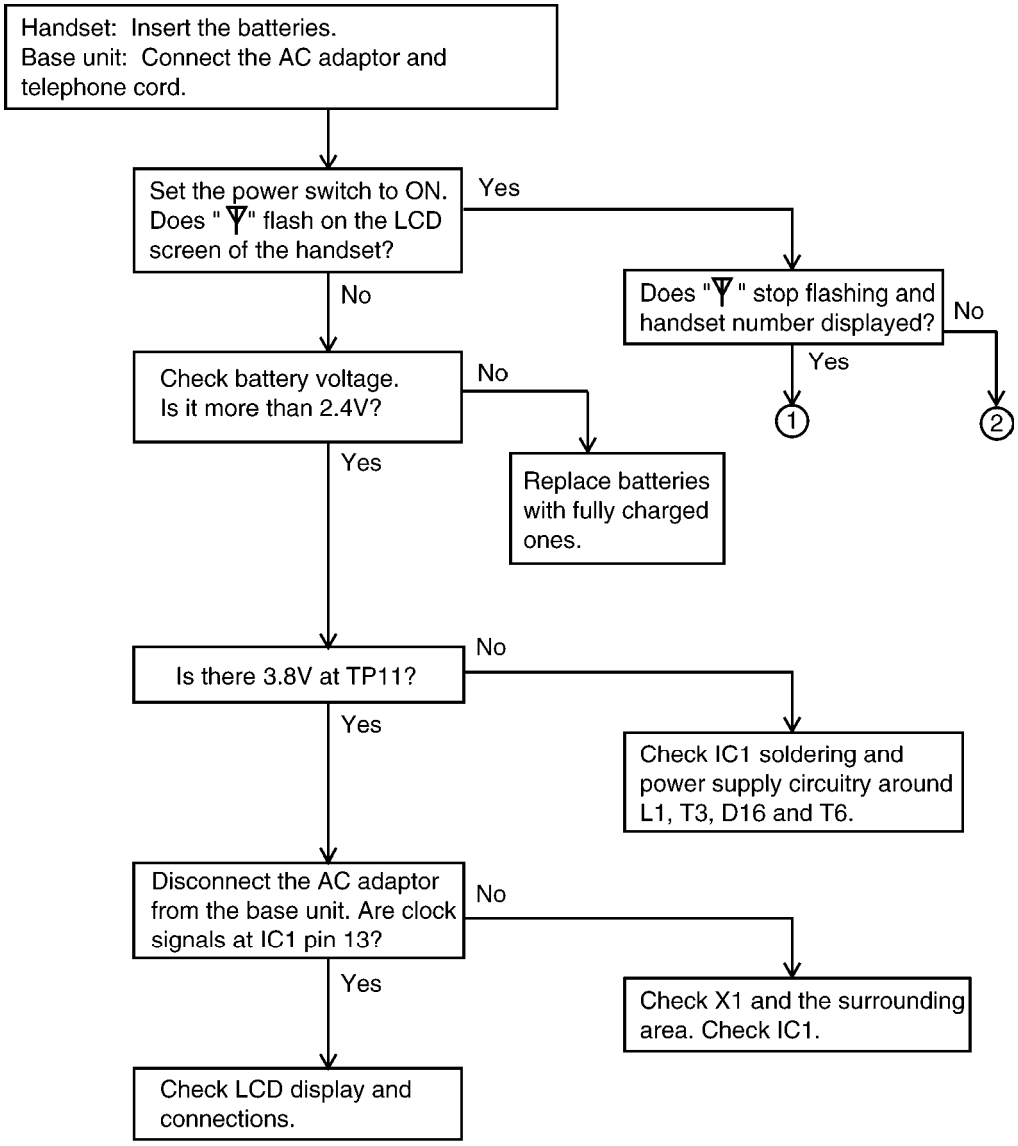
1. Connect the RF input cable from the CMD60 to the "0V" and "ANT" antenna pads.
2. Switch on the 2.4V supply.
3. Switch the handset on at the keypad.
4. Enter "RDEEPROM 00 4A 01". This will return the value "25" if a base has been registered to the handset, or "FF" if there is no base registered.
5. If a base is not registered to the unit (i.e. "FF" returned in step 4) then enter "SETBASE" to induce registration.
6. Set the CMD60 to MANUAL TEST mode.
7. Enter "TESTMODE" on the PC.
8. Enter "RDEEPROM 00 36 05" to obtain the base RFPI identifier.
9. Set the RFPI in the CMD60 to the value obtained in the previous step.
10. Press SETUP CONNECT on the CMD60.
11. Check the power (NTP): it must be between 20 and 25dBm.
12. Press MODULATION.
13. Set DATA TYPE to FIG 31.
14. Check frequency drift: must be 0 ± 35 kHz/ms.
15. Check frequency offset: must be 0 ± 40 kHz.
16. Check deviation or modulation (max ± B field) with data type "FIG 31": must be 300kHz to 410kHz.

17. **Press Menu Up " ↑ " on the CMD60.**
18. **Press POWER RAMP.**
19. **Check that the burst fits the mask.**
20. **Press Menu Up " ↑ " on the CMD60.**
21. **Press BER.**
22. **Obtain the sensitivity by slowly reducing RF LEVEL until the BER falls below 1000ppm. The sensitivity is the RF LEVEL reading at this point. It must be < -88dBm.**
23. **Press Menu Up " ↑ " on the CMD60.**
24. **Press BEARER RELEASE and switch off the 2.4V supply.**
25. **If the "SETBASE" operation above was carried out then enter "RESBASE" to de-register.**

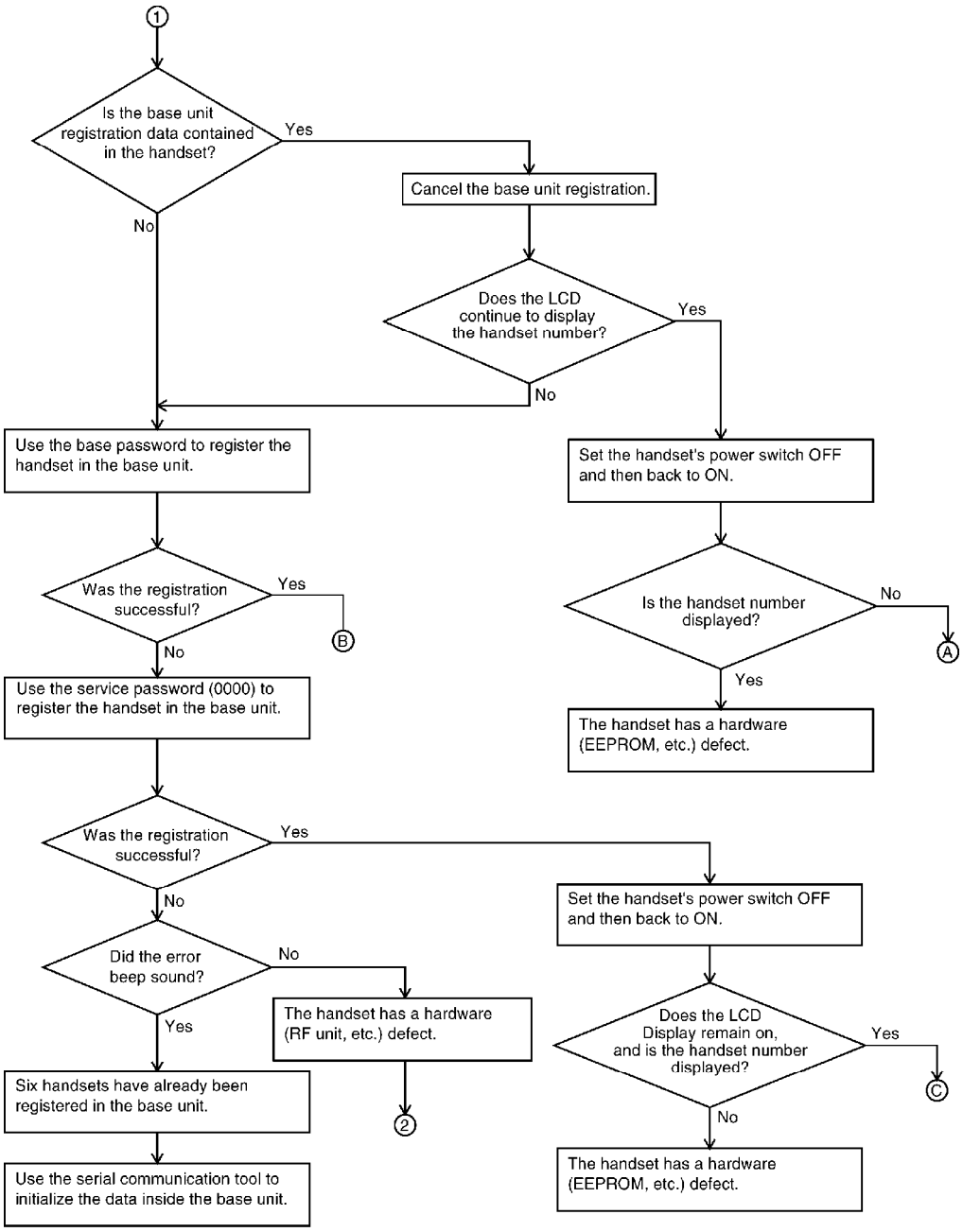
Note:
These tests can also be repeated on TRAFFIC CARRIERS 0 and 9.

9. TROUBLESHOOTING GUIDE

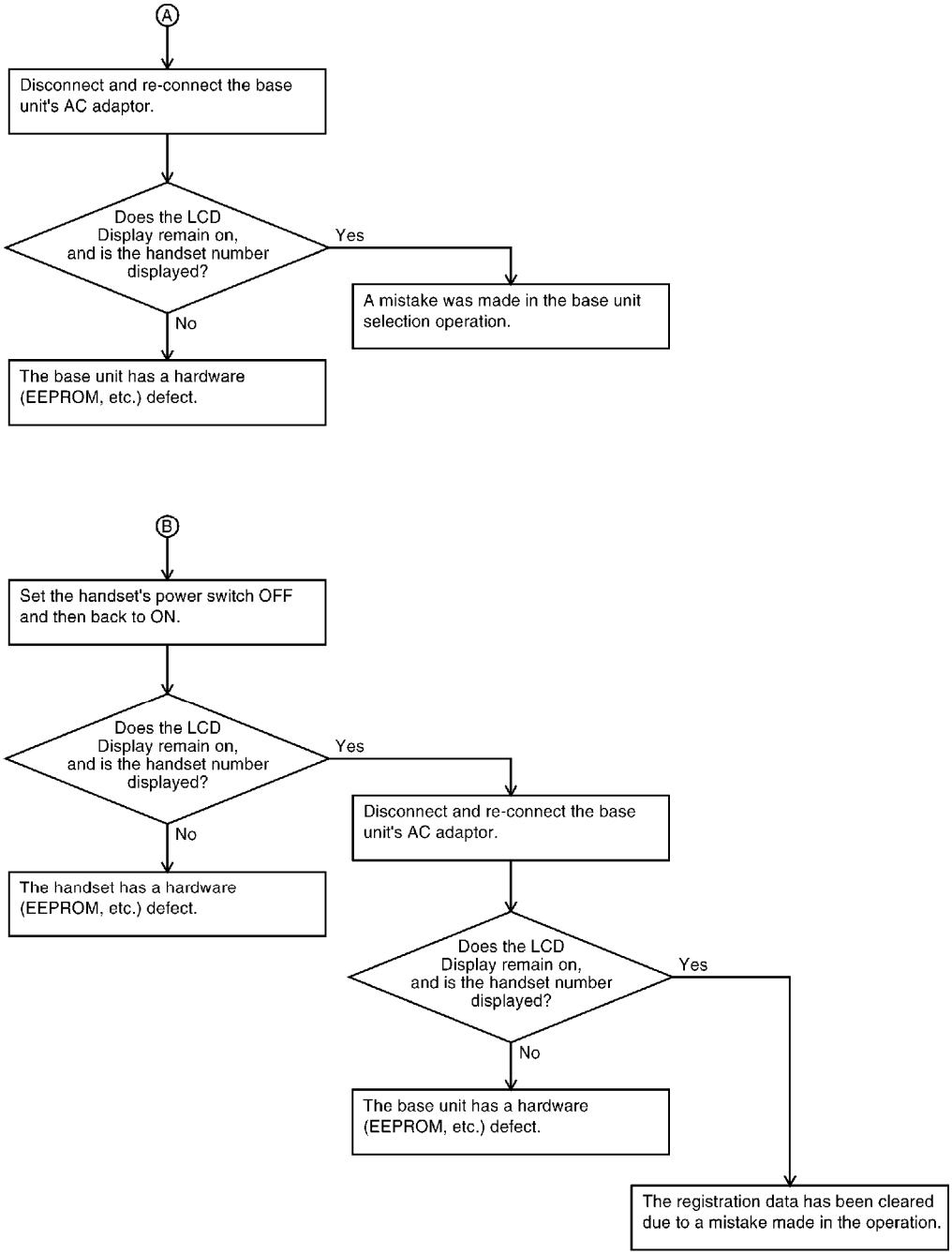
9.1. HANDSET: DOES NOT OPERATE

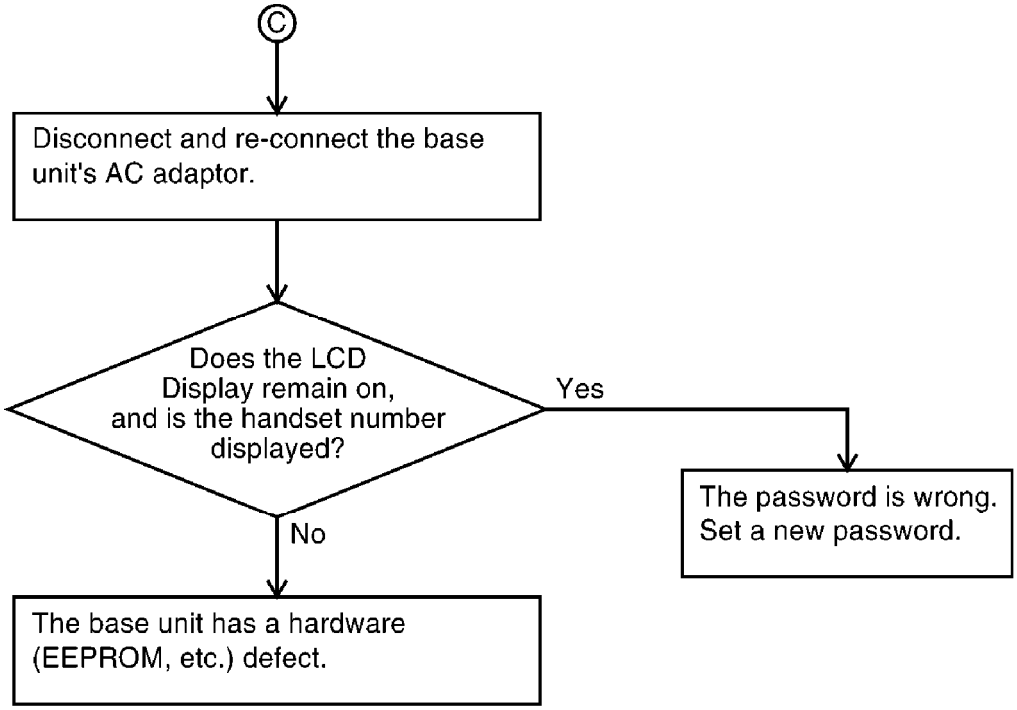


9.2. HANDSET: LINK

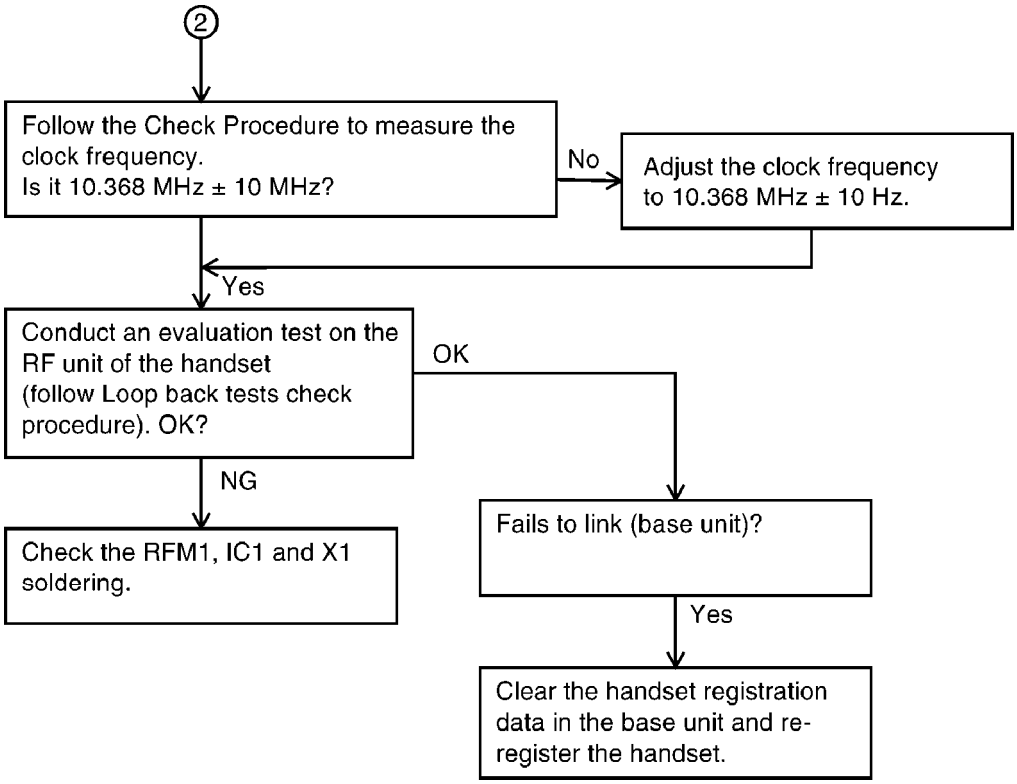


(Use the method for clearing the registered handset data in the base unit.)

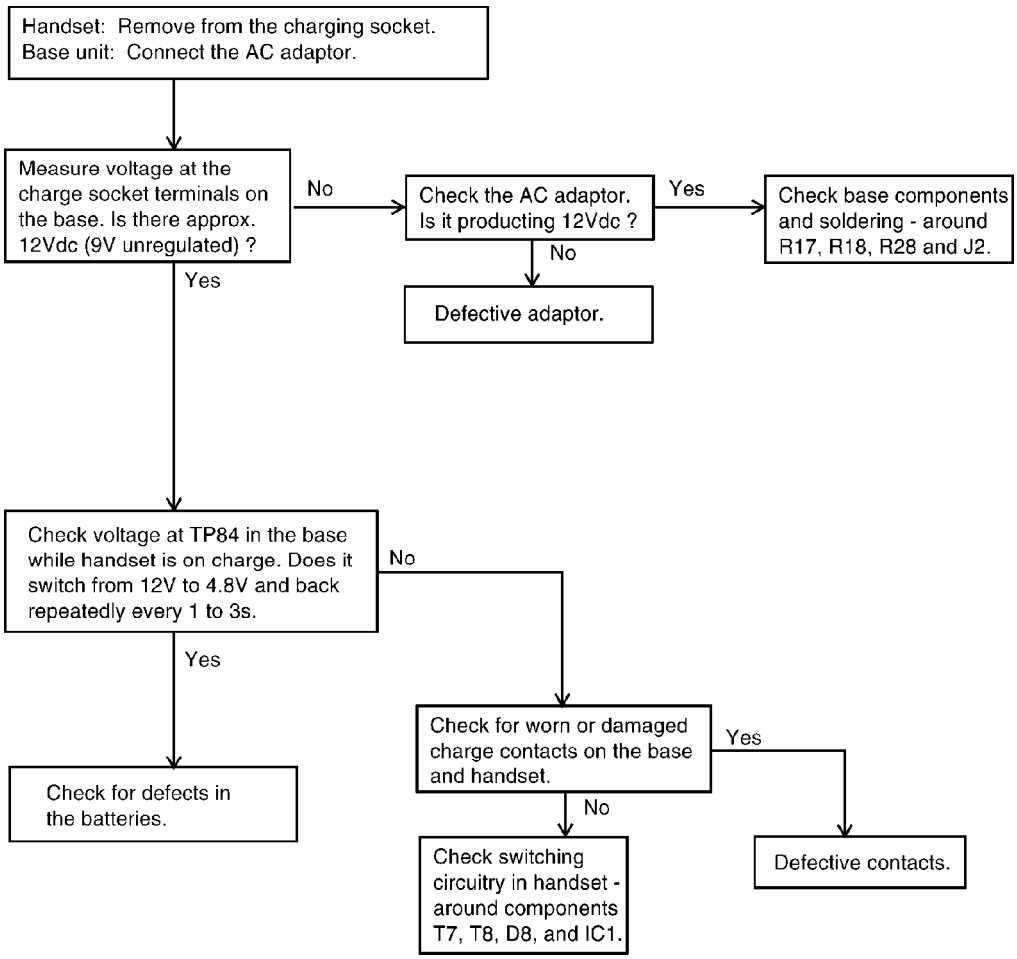

A
Disconnect and re-connect the base unit's AC adaptor.
Does the LCD Display remain on, and is the handset number displayed?
Yes
A mistake was made in the base unit selection operation.
No
The base unit has a hardware (EEPROM, etc.) defect.
B
Set the handset's power switch OFF and then back to ON.
Does the LCD Display remain on, and is the handset number displayed?
Yes
Disconnect and re-connect the base unit's AC adaptor.
No
The handset has a hardware (EEPROM, etc.) defect.
Does the LCD Display remain on, and is the handset number displayed?
Yes
No
The base unit has a hardware (EEPROM, etc.) defect.
The registration data has been cleared due to a mistake made in the operation.



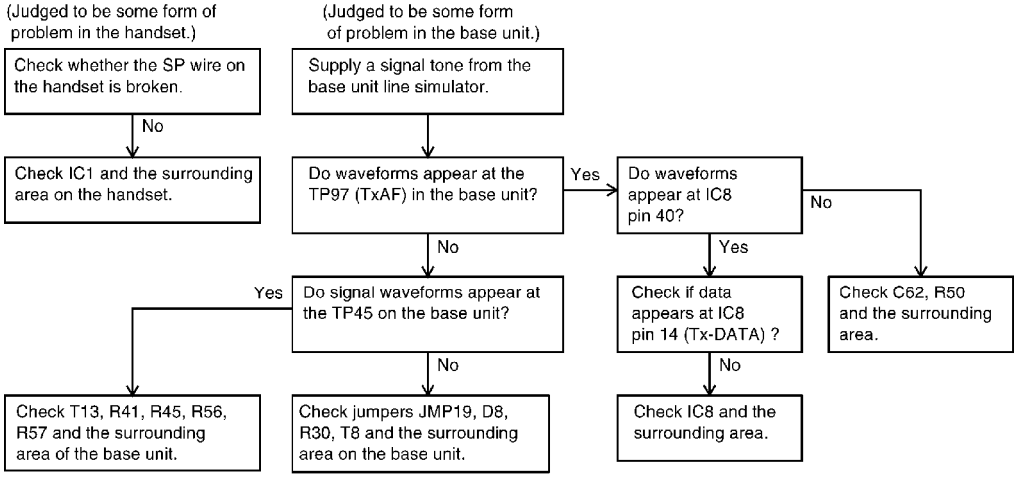
9.3. HANDSET: DOES NOT LINK



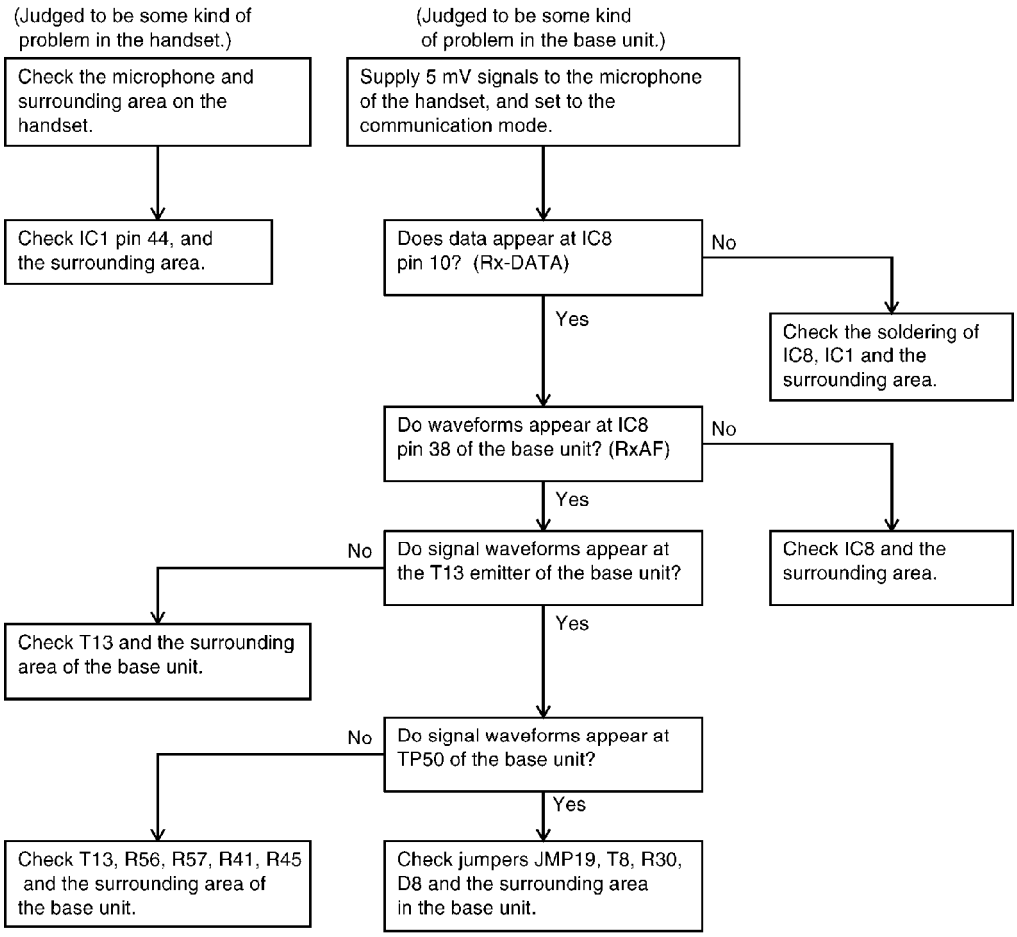
9.4. BATTERY DOES NOT CHARGE



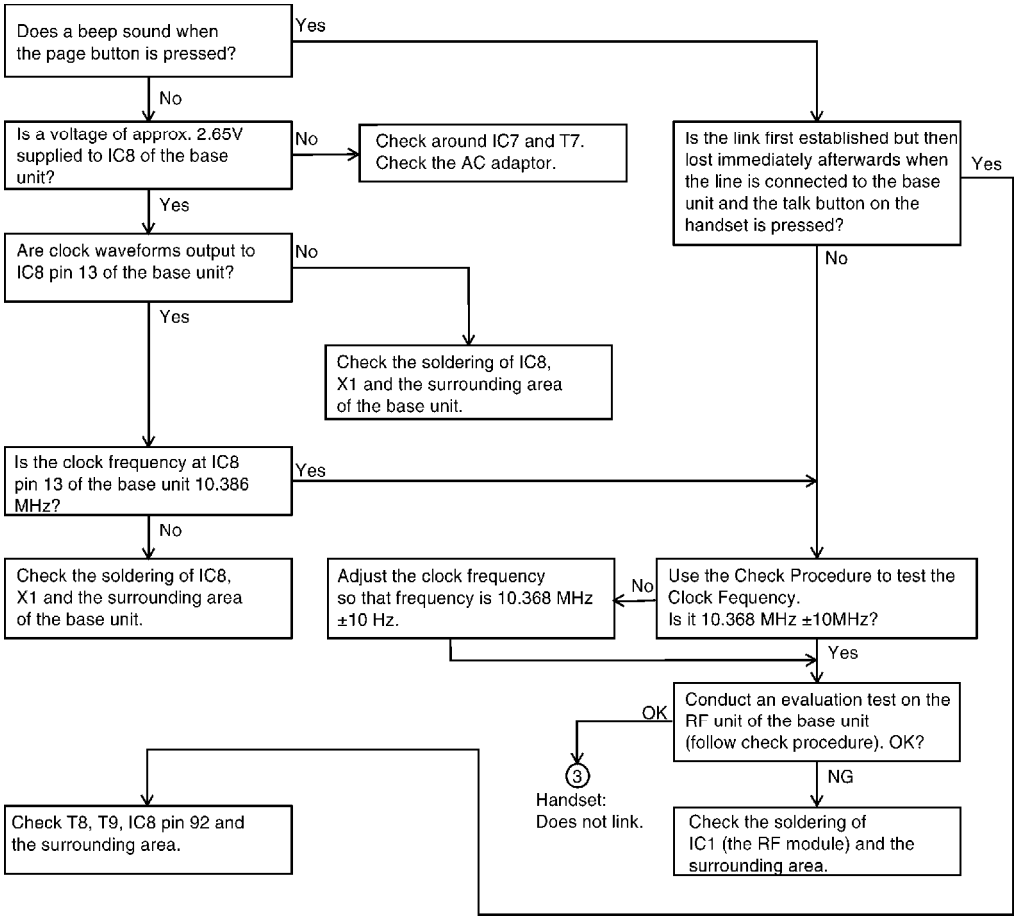
9.5. NO VOICE RECEPTION



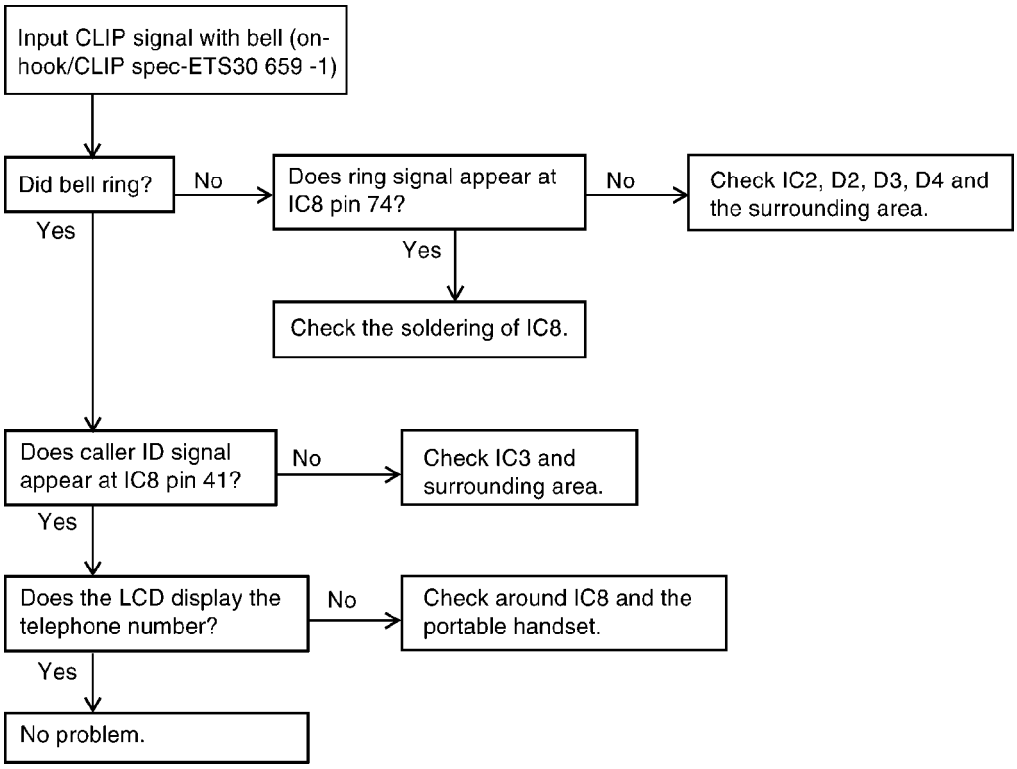
9.6. NO VOICE TRANSMISSION



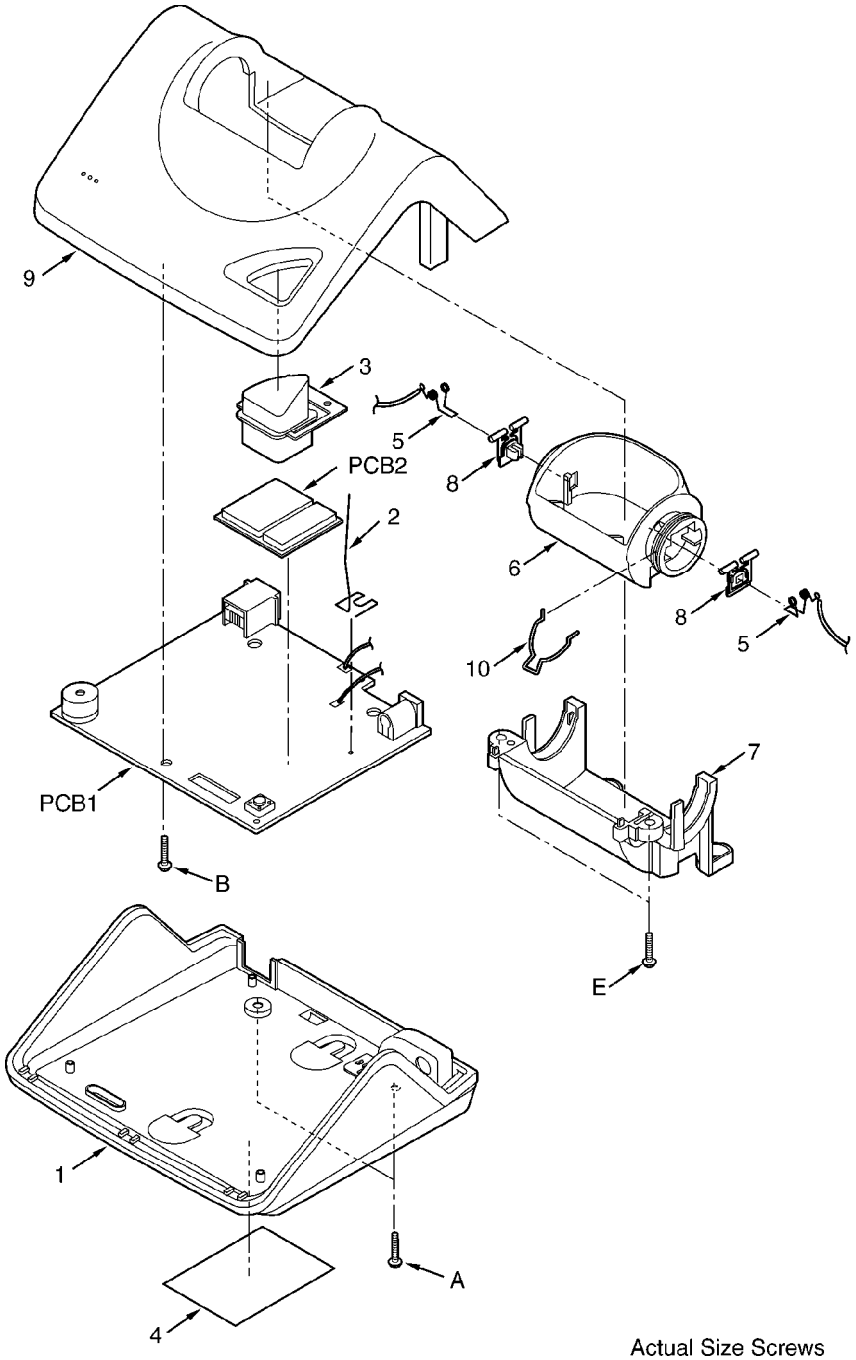
9.7. BASE UNIT: DOES NOT LINK



9.8. BASE UNIT : CALLER ID PROBLEMS



10. CABINET AND ELECTRICAL PARTS LOCATION (BASE UNIT)

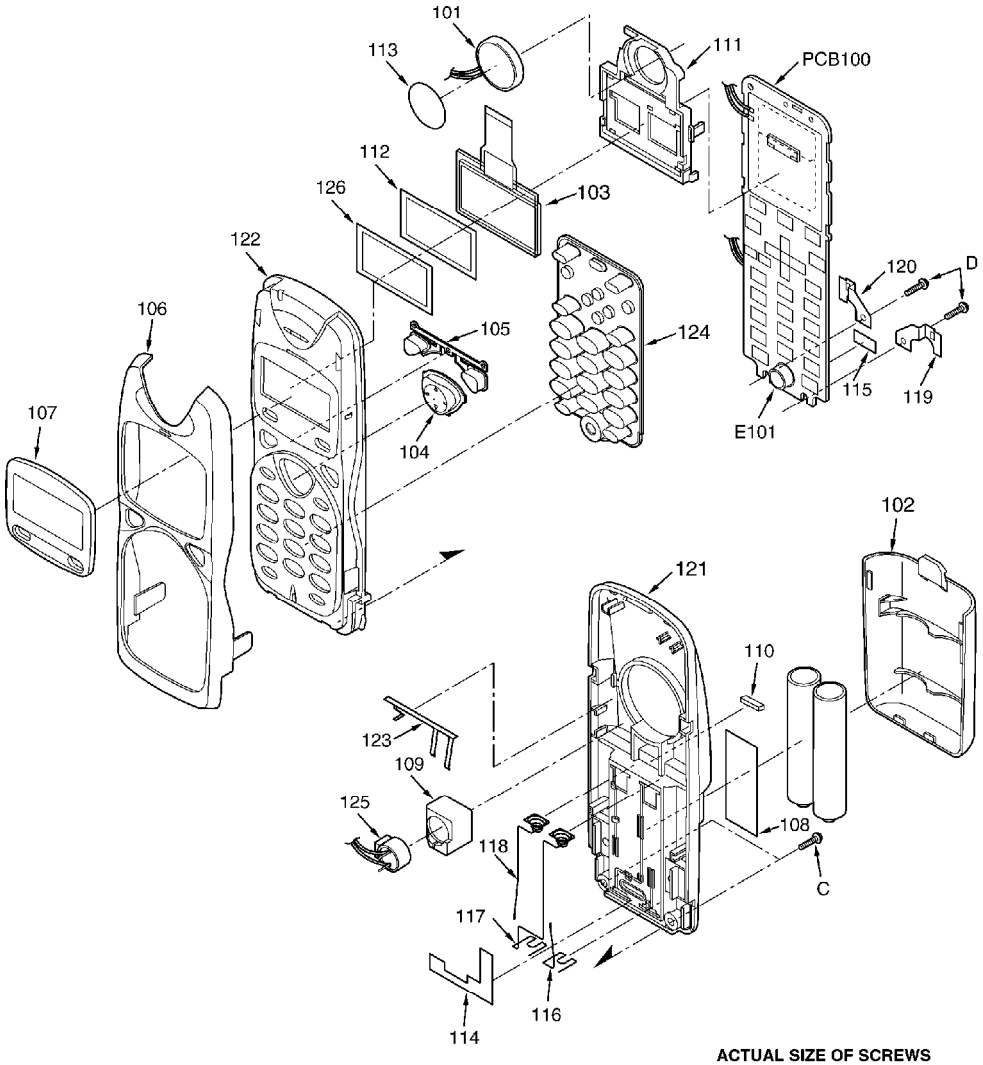


Actual Size Screws

Ref.No.	Part No.	Figure
A	XTW26+10P	
B	XTW26+10P	
E	XTW26+10P	

11. CABINET AND ELECTRICAL PARTS LOCATION

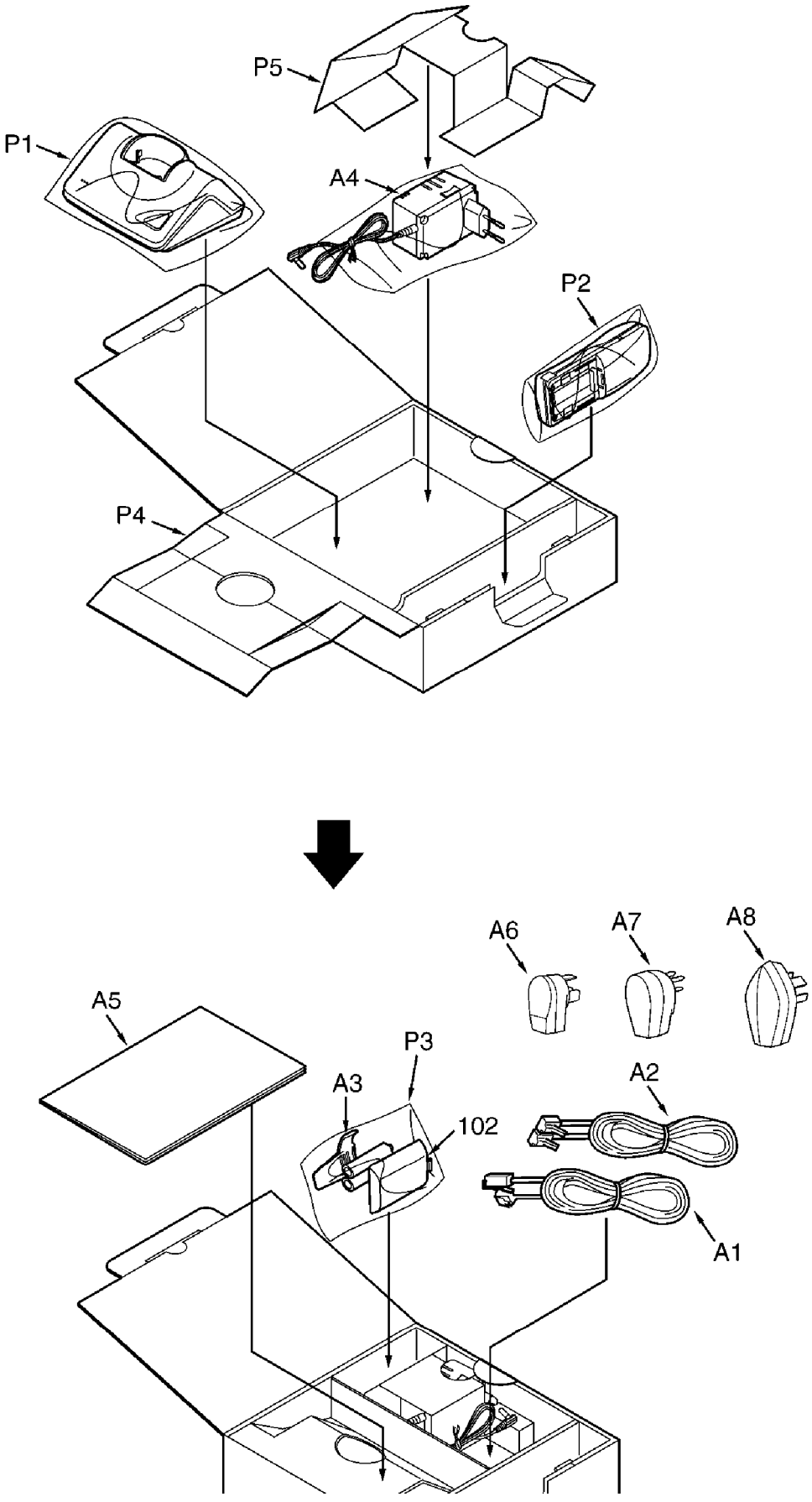
(HANDSET)

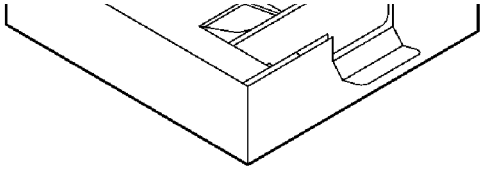


ACTUAL SIZE OF SCREWS

Ref. No.	Part No.	Screw
C	XTW2+Q8P	
D	XTB2+6G	

12. ACCESSORIES AND PACKING MATERIALS


P5
P1
A4
P2
P4
A6
A7
A8
A5
P3
A3
A2
102
A1



13. REPLACEMENT PARTS LIST

This replacement parts list is for KX-TCD700NEB only.

Notes:

1. **The marking (RTL) indicates that the Retention Time is limited for this item.**
   After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability is dependent on the type of assembly, and in accordance with the laws governing parts and product retention.
   After the end of this period, the assembly will no longer be available.
2. **Important safety notice / Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacture's specified parts.**
3. **The S mark indicates service standard parts and may differ from production parts.**
4. **RESISTORS & CAPACITORS / Unless otherwise specified; / All resistors are in ohms (Ω) K=1000 Ω , M=1000k Ω / All capacitors are in MICRO FARADS (μ F) P= μ μ F / *Type & Wattage of Resistor**

Resistor Type

ERC: Solid ERD: Carbon PQ4R: Chip	ERX: Metal Film ERG: Metal Oxide ERO: Metal Film	PQRD: Carbon PQRQ: Fuse ERF: Wire Wound ERJ: Thick Film

Wattege

3:1/16W	10, 16, 18:1/8W	14, 25, S2:1/4W	12, 50, S1:1/2W	1:1W
2:2W	5:5W			

Capacitor Type

ECFD: Semi-Conductor ECQS: Styrol PQCBX, ECUV: Chip ECMS: Mica	ECCD,ECKD,PQCBC,PQVP,ECU: Ceramic ECQM,ECQV,ECQE,ECQU,ECQB: Polyester ECEA,ECSZ,ECOS,PSCE: Electrolytic ECQP : Polypropylene

Voltage

ECQ Type	ECQG ECQV Type	ECSZ Type	Others	
1H : 50V 2A : 100V 2E : 250V 2H : 500V	05 : 50V 1 : 100V 2 : 200V	OF : 3.15V 1A : 10V 1V : 35V OJ : 6.3V	OJ : 6.3V 1A : 10V 1C : 16V 1E,25 : 25V	1V : 35V 50,1H : 50V 1J : 63V 2A : 100V

13.1. Base Unit

13.1.1. CABINET AND ELECTRICAL PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
1	PQYF10191Z1	LOWER CABINET	S
2	PQSA10118Z	ANTENNA	
3	PQBC10324Z1	PAGE BUTTON	S
4	PQGT10969Z	NAME PLATE	
5	PQJT10173Z	CHARGE TERMINAL	
6	PQKE10121Z1	CHARGE CASE	S
7	PQKE10122Z1	CHARGE CASE HOLDER	S
8	PQKE10123Z1	CHARGE TERMINAL CASE	S
9	PQKM10473Z1	UPPER CABINET	S
10	PQUS10266Z	CRICK SPRING	

13.1.2. MAIN P.C.BOARD PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
PCB1	PQWP1D700NEH	MAIN P.C.BOARD ASS'Y (RTL)	
		(ICS)	
IC2	PQVIPC357CN	IC	
IC3	PQVILMV321M5	IC	
IC5	PQWICD700-6H	IC	
IC7	PQVILM1117MP	IC	
IC8	PQVI6725XL15	IC	
IC9	PQVIT2432WM6	IC	
		(TRANSISTORS)	
T6	PQVTBC81725T	TRANSISTOR(SI)	S
T7	PQVTBC80725T	TRANSISTOR(SI)	S
T8	2SA1807	TRANSISTOR(SI)	
T9	PQVTBF822T7	TRANSISTOR(SI)	
T10	PQVTBC847BT1	TRANSISTOR(SI)	
T13	2SD874A	TRANSISTOR(SI)	
		(DIODES)	
D2	PQVDBZV55C02	DIODE(SI)	
D3	PQVDBZV55C02	DIODE(SI)	
D4	MA111	DIODE(SI)	
D5	MA111	DIODE(SI)	
D7	PQVDBZV55C47	DIODE(SI)	S
D8	PQVDS1ZB60F1	DIODE(SI)	
D9	PQVDBZV55C47	DIODE(SI)	S
D10	MA1Z300	DIODE(SI)	
D16	MA111	DIODE(SI)	
		(OTHERS)	
J1	PQJJ1T028Z	CONNECTOR DC JACK	
J2	PQJJ1B007Z	TEL JACK	
E1	PQEFBKSS1201	BUZZER	
K1	EVQ21005G	TACT SWITCH	
X1	PQVCF1036N4Z	CRYSTAL OSCILLATOR	
SA3	PQVDDSS301L	SURGE ABSORBER	
		(RESISTORS)	
R2	ERJ3GEYJ391	390	
R3	PQ4R18XJ153	15k	

Ref. No.	Part No.	Part Name & Description	Remarks
R4	ERJ3GEYJ103	10k	
R5	ERJ3GEYJ223	22k	
R6	ERJ3GEYJ102	1k	
R8	ERJ3GEYJ222	2.2k	
R9	ERJ3GEYJ473	47k	
R10	ERJ3GEYJ473	47k	
R13	PQ4R18XJ820	82	
R15	ERJ3GEYJ391	390	
R16	ERJ3GEYJ102	1k	
R17	ERJ1WYJ111	110	
R18	ERJ1WYJ111	110	
R19	ERJ3GEYJ474	470k	
R20	ERJ3GEYJ224	220k	
R21	ERJ3GEYJ474	470k	
R22	ERJ3GEYJ274	270k	
R25	ERJ3GEYJ102	1k	
R28	ERJ1WYJ111	110	
R29	ERJ3GEYJ101	100	
R30	PQ4R18XJ000	0	
R35	ERJ3GEYJ104	100k	
R36	ERJ3GEYJ272	2.7k	
R37	ERJ3GEYJ101	100	
R38	ERJ3GEYJ101	100	
R39	ERJ3GEYJ103	10k	
R40	ERJ3GEYJ222	2.2k	
R41	ERJ3GEYJ333	33k	
R42	ERJ3GEYJ101	100	
R43	ERJ3GEYJ560	56	
R44	ERJ3GEYJ103	10k	
R45	ERJ3GEYJ103	10k	
R47	ERJ3GEYJ273	27k	
R48	ERJ3GEYJ560	56	
R49	ERJ3GEYJ822	8.2k	
R50	ERJ3GEYJ101	100	
R53	ERJ3GEYJ101	100	
R54	ERJ3GEYJ183	18k	
R55	ERJ3GEYJ104	100k	
R56	ERJ12YJ560	56	
R57	ERJ12YJ220	22	
R59	ERJ3GEYJ391	390	
R60	ERJ3GEYJ102	1k	
R62	PQ4R10X512	5.1k	
R67	ERJ3GEYJ331	330	
R68	ERJ3GEYJ681	680	
R70	ERJ3GEYJ562	5.6k	
JMP3	PQ4R10J000	0	
JMP9	PQ4R10J000	0	
JMP19	PQ4R10J000	0	
L4	ERJ3GEYJ000	0	
		(CAPACITORS)	
C1	ECUV1C104KBV	0.1	
C2	ECQE2E474KZ	0.47	S
C3	ECUV1C104KBV	0.1	
C4	ECUV1C104KBV	0.1	

Ref. No.	Part No.	Part Name & Description	Remarks
C6	ECUV1C104KBV	0.1	
C10	ECUV1H1R8CCV	1.8	
C11	ECUV1H100DCV	10p	
C12	ECUV2H102KB	0.001	
C13	ECUV1H151JCV	150p	
C14	ECUV2H102KB	0.001	
C15	ECUV1H151JCV	150p	
C16	ECUV2H681KB	680p	
C17	ECUV2H681KB	680p	
C19	ECUV1H100DCV	10p	
C20	ECUV1H100DCV	10p	
C27	ECUV1H472KBV	0.0047	
C28	PQCUV1C224KB	0.22	
C30	ECUV1H100DCV	10p	
C31	ECUV1H100DCV	10p	
C34	PQCUV1C154KB	0.15	
C36	ECEV1CA100	10	
C39	ECUV1H100DCV	10p	
C40	PSCEV1CA101S	100p	
C41	ECUV1H100DCV	10p	
C42	ECEV1AA101	100	
C43	ECUV1H100DCV	10p	
C44	ECUV1H100DCV	10p	
C45	PSCEV1CA101S	100p	
C46	ECUV1H100DCV	10p	
C47	ECUV1A225KB	2.2	
C48	PQCUV1C105KB	1	
C49	ECUV1H100DCV	10p	
C51	ECUV1H050CCV	5p	S
C53	ECUV1H150JCV	15p	
C55	ECUV1C104KBV	0.1	
C56	ECUV1C104KBV	0.1	
C57	ECUV1C104KBV	0.1	
C58	ECUV1C104KBV	0.1	
C59	ECUV1C104KBV	0.1	
C60	ECUV1H100DCV	10p	
C61	PQCUV1C224KB	0.22	
C62	ECUV1C104KBV	0.1	
C63	ECUV1H100DCV	10p	
C64	ECUV1C683KBV	0.068	
C65	ECUV1C104KBV	0.1	
C66	ECUV1E333KBV	0.033	
C79	ECUV1C104KBV	0.1	
C80	ECUV1H101JCV	100p	
C84	ECUV1H100DCV	10p	

13.1.3. RF P.C.BOARD PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
PCB2	PQWP2D700CEH	RF P.C.BOARD ASS'Y (RTL)	
		(ICS)	
IC400	PMB6818	IC	
IC402	PMB6610V12	IC	S
		(TRANSISTOR)	
T400	BC858BW	TRANSISTOR (SI)	
		(DIODES)	
D400	PQVDBAR6405	DIODE (SI)	
D401	PQVDBAR6405	DIODE (SI)	
		(COILS)	
L400	G1C4N7Z00005	COIL	
L401	G1C4N7Z00005	COIL	
L402	G1C22NKA0025	COIL	
L403	PSLQR2B2N7S	COIL	
L404	PSLQR2B2N7S	COIL	
		(OTHERS)	
E2	PQMC10417Z	RF CAN 1	
E3	PQMC10418Z	RF CAN 2	
		(RESISTORS)	
R402	ERJ3GEYJ561	560	
R406	ERJ3GEYJ100	10	
R408	ERJ3GEYJ561	560	
R409	ERJ3GEYJ331	330	
R410	ERJ3GEYJ273	27k	
R411	ERJ3GEYJ472	4.7k	
R412	ERJ3GEYJ222	2.2k	
R413	ERJ3GEYJ682	6.8k	
R414	ERJ3GEYJ183	18k	
R415	ERJ3GEYJ152	1.5k	
R416	ERJ3GEYJ331	330	
R417	ERJ3GEYJ272	2.7k	
R418	ERJ3GEYJ2R2	2.2	
		(CAPACITORS)	
C1	ECUV1HR47CCV	0.47	
C401	ECUV1H100DCV	10p	
C402	ECUV1H100DCV	10p	
C404	ECUV1H100DCV	10p	
C405	ECUV1H100DCV	10p	
C406	ECUV1H331JCV	330p	
C407	ECUV1H100DCV	10p	
C408	ECUV1H330JCV	33p	
C409	PQCUV1H102J	0.001	
C410	0805N472J500	0.0047	
C411	ECUV1H102KBV	0.001	
C412	ECUV1H100DCV	10p	
C413	ECUV1H103KBV	0.01	
C414	PQCUV1H222JC	0.0022	
C415	ECUV1H680JCV	68p	
C416	0805N472J500	0.0047	
C418	ECUV1H1R5CCV	1.5	
C419	ECUV1H100DCV	10p	
C420	ECUV1H100DCV	10p	
C421	ECUV1H100DCV	10p	
C422	ECUV1H100DCV	10p	

Ref. No.	Part No.	Part Name & Description	Remarks
C423	ECUV1H330JCV	33p	
C424	0603N1R8B500	1.8	
C425	ECUV1H1R8CCV	1.8	
C426	ECUV1C104KBV	0.1	
C427	ECUV1H100DCV	10p	
C428	ECUV1H100DCV	10p	
C429	ECUV1H100DCV	10p	
C430	ECUV1C104KBV	0.1	
C431	ECUV1H100DCV	10p	
C432	ECUV1H4R7CCV	4.7	
C433	ECUV1H100DCV	10p	
C434	ECUV1H100DCV	10p	
C435	ECUV1H2R2CCV	2.2	
C436	ECUV1H100DCV	10p	
C437	ECUV1H221JCV	220p	
C438	ECUV1H1R5CCV	1.5	
C439	ECUV1H010CCV	1p	
C440	ECUV1H8R2CCV	8.2	
C441	ECUV1H220JCV	22p	
C442	ECUV1H1R8CCV	1.8	
C443	ECUV1H1R8CCV	1.8	
C444	0603N1R8B500	1.8	
C445	ECUV1H100DCV	10p	
C446	ECUV1C104KBV	0.1	
C447	ECUV1H2R2CCV	2.2	
C448	ECUV1H100DCV	10p	
C449	ECUV1H100DCV	10p	
C450	ECUV1H100DCV	10p	
C451	ECUV1H100DCV	10p	
C452	ECUV1H100DCV	10p	
C453	ECUV1H2R7CCV	2.7	
C454	ECUV1H2R2CCV	2.2	
C455	ECUV1H100DCV	10p	
C456	ECUV1H2R2CCV	2.2	
C458	ECUV1H2R2CCV	2.2	

13.2. Handset

13.2.1. CABINET AND ELECTRICAL PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
101	L0AD0200006	SPEAKER	
102	PQkk10109Y2	BATTERY COVER	
103	PQADS2404W	LIQUID CRYSTAL DISPLAY	
104	PQBC10323Y1	NAVIGATOR KEY	S
105	PQBX10345Y1	FUNCTION BUTTON	S
106	PQGG10116Y2	GRILLE	S
107	PQGP10178X1	LCD PANEL	S
108	PQGT14483Z	NAME PLATE	
109	PQHG10611Z	RINGER RUBBER	
110	PQHG10634Z	RUBBER	
111	PQHR10779Y	LCD HOLDER	
112	PQHS10430Y	LCD SPONGE	
113	PQHS10467Z	SPEAKER NET	
114	PQHX10990Y	SHEET PET	
115	PQHX11030Z	INSULATION TAPE	
116	PQJC10046Z	BATTERY TERMINAL A	
117	PQJC10047Y	BATTERY TERMINAL B	
118	PQJC10048Y	BATTERY TERMINAL C	
119	PQJT10168Y	CHARGE TERMINAL (L)	
120	PQJT10169Y	CHARGE TERMINAL (R)	
121	PQkF10497X2	REAR CABINET	S
122	PQkM10464X2	FRONT CABINET	S
123	PQSA10117Y	ANTENNA	
124	PQSX10163Z	RUBBER KEYPAD	
125	LODACD000001	RINGER	
126	PQHS10429X	DOUBLE SIDE TAPE	

13.2.2. MAIN P.C.BOARD PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
PCB100	PQWP1D700CER	MAIN P.C.BAORD ASS'Y (RTL)	
		(ICS)	
IC1	PQVIPMB6720	IC	
IC2	PQVIT2432WM6	IC	
IC3	PQWICD700CER	IC	
IC400	PMB6818	IC	
IC402	PMB6610V12	IC	S
		(TRANSISTORS)	
T3	PQVTSI2302DS	TRANSISTOR(SI)	
T4	PQVTBC81725T	TRANSISTOR(SI)	S
T5	PDTC143ET	TRANSISTOR(SI)	
T6	PQVTBC80725T	TRANSISTOR(SI)	S
T7	PQVTBC80740T	TRANSISTOR(SI)	S
T8	PDTC143ET	TRANSISTOR(SI)	
T400	BC858BW	TRANSISTOR(SI)	
		(DIODES)	
D4	MA111	DIODE(SI)	
D5	MA111	DIODE(SI)	
D6	MA111	DIODE(SI)	
D8	MA112	DIODE(SI)	
D10	MA111	DIODE(SI)	
D11	B3ABB0000001	DIODE(SI)	S
D12	B3ABB0000001	DIODE(SI)	S

Ref. No.	Part No.	Part Name & Description	Remarks
D13	B3ABB0000001	DIODE(SI)	S
D14	B3ABB0000001	DIODE(SI)	S
D16	MA2H73600L	DIODE(SI)	
D18	PQVDBZV55C47	DIODE(SI)	S
D19	PQVDBZV55C47	DIODE(SI)	S
D21	PQVDBZV55C47	DIODE(SI)	S
D400	PQVDBAR6405	DIODE(SI)	
		(COILS)	
L1	G1A220F00005	COIL	
L2	ELJPA100kF	COIL	
L3	ELJPA100kF	COIL	
L400	G1C4N7Z00005	COIL	
L401	G1C4N7Z00005	COIL	
L402	G1C22NkA0025	COIL	
L405	PSLQR2B2N7S	COIL	
L406	PSLQR2B2N7S	COIL	
F1	PQLQR2M6N8kT	COIL	
		(OTHERS)	
A1A	PQJT10152Y	CHARGE TERMINAL	
A1B	PQJT10152Y	CHARGE TERMINAL	
E101	L0CBAB000040	BUILTIN-MICROPHONE	
E102	PQMC10417Z	MAGNETIC SHIELD	
E103	PQMC10418Z	MAGNETIC SHIELD	
J1	PQJT10152Y	CHARGE TERMINAL	
J2	PQJT10152Y	CHARGE TERMINAL	
X1	H0J103200001	CRYSTAL OSCILLATOR	
		(RESISTORS)	
R1	ERJ3GEYJ222	2.2k	
R2	ERJ3GEYJ000	0	
R3	ERJ3GEYJ222	2.2k	
R4	ERJ3GEYJ222	2.2k	
R5	ERJ3GEYJ222	2.2k	
R8	ERJ3GEYJ471	470	
R9	ERJ3GEYJ223	22k	
R10	ERJ3GEYJ102	1k	
R13	ERJ3GEYJ100	10	
R14	ERJ3GEYJ124	120k	
R15	ERJ3GEYJ473	47k	
R16	PQ4R18XJR10	0.1	
R21	ERJ3GEYJ471	470	
R24	ERJ3GEYJ471	470	
R27	ERJ3GEYJ220	22	
R28	ERJ3GEYJ220	22	
R29	ERJ3GEYJ102	1k	
R30	ERJ3GEYJ272	2.7k	
R32	ERJ3GEYJ000	0	
R33	ERJ3GEYJ000	0	
R42	ERJ3GEYJ153	15k	
R43	ERJ3GEYJ560	56	
R50	ERJ3GEYJ103	10k	
R51	PQ4R18XJ471	470	
R52	PQ4R10XJ122	1.2k	
R54	ERJ3GEYJ224	220k	
R55	ERJ3GEYJ104	100k	

Ref. No.	Part No.	Part Name & Description	Remarks
R56	PQ4R10XJ2R7	2.7	
R59	ERJ3GEYJ103	10k	
R60	ERJ3GEYJ103	10k	
R61	ERJ3GEYJ224	220k	
R62	ERJ3GEYJ104	100k	
R67	ERJ3GEYJ101	100	
R68	ERJ3GEYJ101	100	
R404	ERJ3GEYJ1R0	1	
R406	ERJ3GEYJ100	10	
R408	ERJ3GEYJ561	560	
R409	ERJ3GEYJ331	330	
R410	ERJ3GEYJ273	27k	
R411	ERJ3GEYJ472	4.7k	
R412	ERJ3GEYJ272	2.7k	
R413	ERJ3GEYJ682	6.8k	
R414	ERJ3GEYJ183	18k	
R415	ERJ3GEYJ152	1.5k	
R416	ERJ3GEYJ331	330	
R417	ERJ3GEYJ272	2.7k	
R418	ERJ3GEYJ1R0	1	
C47	ERJ3GEYJ473	47k	
		(CAPACITORS)	
C1	ECUV1C683kBV	0.068	
C2	ECUV1C683kBV	0.068	
C3	ECUV1C683kBV	0.068	
C4	ECST1AD227	220	
C5	ECUV1C683kBV	0.068	
C6	ECUV1H030CCV	3p	
C7	ECUV1H220JCV	22p	
C14	ECUV1C104kBV	0.1	
C15	ECUV1C104kBV	0.1	
C16	ECUV1C683kBV	0.068	
C17	ECUV1H100DCV	10p	
C18	ECST1AY475	4.7	
C19	ECUV1H100DCV	10p	
C20	ECUV1H100DCV	10p	
C21	ECUV1H100DCV	10p	
C22	ECUV1H100DCV	10p	
C25	ECUV1H100DCV	10p	
C26	ECUV1H100DCV	10p	
C27	ECUV1H100DCV	10p	
C28	ECUV1A225kB	2.2	
C29	ECUV1H100DCV	10p	
C30	ECUV1C104kBV	0.1	
C31	ECUV1C104kBV	0.1	
C32	ECUV1C104kBV	0.1	
C33	ECUV1C104kBV	0.1	
C36	ECUV1H100DCV	10p	
C37	ECUV1C104kBV	0.1	
C48	ECUV1C104kBV	0.1	
C49	ECST1AY106	10	
C50	ECUV1C104kBV	0.1	
C51	ECUV1C104kBV	0.1	
C52	PQCUV1E104MD	0.1	S

Ref. No.	Part No.	Part Name & Description	Remarks
C53	ECUV1C104kBV	0.1	
C54	ECUV1C104kBV	0.1	
C56	ECUV1C683kBV	0.068	
C57	ECUV1C104kBV	0.1	
C58	ECUV1C104kBV	0.1	
C59	ECUV1C104kBV	0.1	
C60	ECUV1C104kBV	0.1	
C61	ECUV1H100DCV	10p	
C400	ECUV1H1R8CCV	1.8	
C402	ECUV1H100DCV	10p	
C404	ECUV1H100DCV	10p	
C405	ECUV1H100DCV	10p	
C406	ECUV1H331JCV	330p	
C407	ECUV1H100DCV	10p	
C408	ECUV1H330JCV	33p	
C409	PQCUV1H102J	0.001	
C410	0805N472J500	0.0047	
C411	ECUV1H102kBV	0.001	
C412	ECUV1H100DCV	10p	
C413	ECUV1H103kBV	0.01	
C414	PQCUV1H222JC	0.0022	
C415	ECUV1H100DCV	10p	
C416	0805N472J500	0.0047	
C417	ECUV1H103kBV	0.01	
C418	ECUV1H1R5CCV	1.5	
C419	ECUV1H100DCV	10p	
C420	ECUV1H100DCV	10p	
C421	ECUV1H100DCV	10p	
C422	ECUV1H100DCV	10p	
C423	ECUV1H330JCV	33p	
C424	0603N1R8B500	1.8	
C426	ECUV1C104kBV	0.1	
C427	ECUV1H100DCV	10p	
C428	ECUV1H100DCV	10p	
C429	ECUV1H103kBV	0.01	
C431	ECUV1H100DCV	10p	
C432	ECUV1H100DCV	10p	
C433	ECUV1H100DCV	10p	
C434	ECUV1H100DCV	10p	
C435	ECUV1H2R2CCV	2.2	
C436	ECUV1H100DCV	10p	
C437	ECUV1H221JCV	220p	
C438	ECUV1H1R5CCV	1.5	
C439	ECUV1H010CCV	1p	
C440	ECUV1H100DCV	10p	
C441	ECUV1H100DCV	10p	
C442	ECUV1H1R2CCV	1.2	
C443	ECUV1H1R5CCV	1.5	
C444	0603N1R8B500	1.8	
C445	ECUV1H100DCV	10p	
C446	ECUV1C104kBV	0.1	
C447	ECUV1H100DCV	10p	
C448	ECUV1H100DCV	10p	
C449	ECUV1H100DCV	10p	

Ref. No.	Part No.	Part Name & Description	Remarks
C450	ECUV1H1R5CCV	1.5	
C451	ECUV1H010CCV	1p	
C452	ECUV1H010CCV	1p	
C455	PQCUV1A105kB	1	
C456	ECUV1H1R8CCV	1.8	
C457	ECUV1H1R8CCV	1.8	
C458	ECUV1H1R8CCV	1.8	

13.2.3. ACCESSORIES AND PACKING MATERIALS

Ref. No.	Part No.	Part Name & Description	Remarks
A1	PQJA10071Z	TEL CORD (for Norway)	
A2	PQJA10075Z	TEL CORD (for Finland)	
A3	PQKE10120Z2	BELT CLIP	
A4	PQLV1CEZ	AC ADAPTOR	⚠
A5	PQQX12973Z	INSTRUCTION BOOK	
A6	PQJP700NEDMZ	TEL PLUG (for Denmark)	
A7	PQJP700NEFLZ	TEL PLUG (for Finland)	
A8	PQJP700NESZ	TEL PLUG (for Sweden)	
P1	XZB18X22A02	POLY BAG (for Base Unit)	
P2	PQPP10084Z	POLY BAG (for Handset)	
P3	XZB10X30A04	POLY BAG	
P4	PQPK13317Y	GIFT BOX	
P5	PQPN11679Z	ADAPTOR PAD	

14. EEPROM LAYOUT (BASE UNIT)

14.1. Scope

The purpose of this section is to describe the layout of the EEPROM (IC9) for the TCD700 Base Unit.
The EEPROM contains hardware, software, and user specific parameters. Some parameters are set during production of the base e.g. crystal frequency adjustment at address 0000 and 0001, some are set by the user configuration e.g. ringer volume at address 0210, and some are set during normal use of the phone e.g. meter pulse billing at address 1040..015F.

14.2. Introduction

The base unit uses a 32k bit (4096 x 8) serial EEPROM (IC9) for storing volatile parameters. All parameters are set up before the base leaves the factory. Some of these are vital for the operation of the hardware so a set of default parameters is programmed before the actual hardware fine-tuning can be initiated. This document lists all default settings with a short description.
In the tables below values in a range that are similar are not repeated; i.e. Address 00 to 01 contains the value 00 simply means that the value 00 is repeated in all addresses in the range. All values in this document are in hexadecimal notation.

Type	Name	Description
D	default	The EEPROM location is preset to the Default value by the eeprom default loader.
A	adjust	The EEPROM location is set during the production test and should not be overwritten. The value is set by the eeprom default loader only if the location contains all 1's (byte: 0xFF, word FFFFh), i, e. it has never been set.
-		EEPROM location which is not set at all.
d	default	Same as D but best-guess value and/or not verified.

14.3. EEPROM Layout

14.3.1. General Setup

Address	Default	Name	Type	Description
0000-01	00 E0	EepromOscillator	A	Frequency adjustment
0002	20	ModulationDeviation	A	Mudulation adjustment
001E-001F	??..??	Reserved	-	Protocol data
0020	00 .. 00	RFPI	A	RFPI
0025	00 00	AC	D	AC code
0027	00	DiversityMode	D	Diversity mode: 0: Diversity 1: Fixed on antenna 1 2: Fixed on antenna 2
0028-002F	??-??	Reserved	-	Protocol data
0030-0034	FF .. FF	IPUI_1	D	Ipui for handset 1. If set to FF .. FF the han not enrolled.
0035-0039	FF .. FF	IPUI_2	D	Ipui for handset 2. If set to FF .. FF the han not enrolled.
003A-003E	FF .. FF	IPUI_3	D	Ipui for handset 3. If set to FF .. FF the han not enrolled.
003F-0043	FF .. FF	IPUI_4	D	Ipui for handset 4. If set to FF .. FF the han not enrolled.
0044-0048	FF .. FF	IPUI_5	D	Ipui for handset 5. If set to FF .. FF the han not enrolled.
0049-004D	FF .. FF	IPUI_6	D	Ipui for handset 6. If set to FF .. FF the han not enrolled.
004E-008F	??..??	Reserved	-	Protocol data
0090-009F	??..??	UAK_1	-	UAK for hanset 1
00A0-00AF	??..??	UAK_2	-	UAK for hanset 2
00B0-00BF	??..??	UAK_3	-	UAK for hanset 3
00C0-00CF	??..??	UAK_4	-	UAK for hanset 4
00D0-00DF	??..??	UAK_5	-	UAK for hanset 5
00E0-00EF	??..??	UAK_6	-	UAK for hanset 6

14.3.2. MeterPulse Billing

Address	Default	Name	Type	Description
0140-0141	00 01 MSB LSB	MpBill.Unit	D	Meter-pulse billing unit
0142-0145	00..00	MpBill.PstnLineTotal	D	Meter-pulse billing total for PSTN line. MSI 0160h.
0146-0149	00..00	MpBill.Hs1	D	Meter-pulse billing total for HS1
014A-014D	00..00	MpBill.Hs2	D	Meter-pulse billing total for HS2
0140E- 0152	00..00	MpBill.Hs3	D	Meter-pulse billing total for HS3
0153-0156	00..00	MpBill.Hs4	D	Meter-pulse billing total for HS4
0157-0159	00..00	MpBill.Hs5	D	Meter-pulse billing total for HS5
015A-015D	00..00	MpBill.Hs6	D	Meter-pulse billing total for HS6
015E-015F	FF..FF	Freeblock0	-	Free block 0

14.3.3. Free Block 1

Address	Default	Name	Type	Description
161-162	00..00	RunTimeErrorLogAddress	-	Last RunTime error (uint16)

14.3.4. Audio Setup

Address	Default	Name	Type	Description
0200	0x14	SpeakerGain	D	Gain for speaker output (GX2), see Gain ir values
0201	0x11	MicGain	D	Gain for microphone input (GR1), see Gai values
0202 - 0203 MSB - LSB	0x3BCA	GX1Gain	D	Gain for GX1 gaincell, see appendix Gain transmit and receive
0204 - 0205 MSB - LSB	0x0110	GR2Gain	D	Gain for GR2 gaincell, see appendix Gain transmit and receive.
0206	0x40	ClipperConfig (Lim_Sc)	D	Soft clipping configuration, see DSP1.7.2.
0207	0x79	Gain after soft clipping (GX1SC)	D	Soft clipping configuration, see appendix Amplification by Shift&Add coeffecients
0208	0xD5	OnhookMicGain	D	On-hook gain-settings for analogue-in. Bit 0..5 : GR1, see Gain index values. Bit 6..7 : AIG, 11=6dB 11=6dB, 01=12dB, 10=18dB

Address	Default	Name	Type	Description
0209 - 020B MSB - LSB	-	Reserved	-	
020C	0xBB	GD1Gain	D	Gain for GD1 gaincell (high DTMF tone), s appendix Gain for tonegenerator
020D	0x24	GD2Gain	D	Gain for GD2 gaincell (low DTMF tone), se appendix Gain for tonegenerator
020E	0x40	GDRGain	D	Gain for GDR gaincell (DTMF tone to hand see appendix Amplification by Shift&Add coeffecients
020F	0x30	GDXGain	D	Gain for GDX gaincell (DTMF tone to line), appendix Amplification by Shift&Add coef
0210	2	RingerVolumeStep	D	Current ringer volume selected by the use
0211	0x00	RingerVolumeData0	D	Volume data for ringer volume step 0. Ran 100.
0212	0x0C	RingerVolumeData1	D	Volume data for ringer volume step 1. Ran 100.
0213	0x18	RingerVolumeData2	D	Volume data for ringer volume step 2. Ran 100.
0214	0x30	RingerVolumeData3	D	Volume data for ringer volume step 3. Ran 100.
0215	10	ToneVolumeData	D	Volume data for tone volume. Range 0-100
0216 - 021F	-		-	Reserved for audio parameters
0220 - 0228	-		-	Reserved for audio parameters
0229	0x21	GCR	D	GCR register
022A	0x20	ACR	D	ACR register
022B - 22E	0x00		D	Unused
022F	0x21	SoftLimiter1	D	LIM_HIGHR
0230	0x18	SoftLimiter1	D	LIM_LOWR
0231	0x40	SoftLimiter2	D	LPOR + TIM_OVR
0232	0x21	SoftLimiter2	D	GOR
0233 - 023F	-		-	Reserved for audio parameters

14.3.5. BsNalTask

Address	Default	Name	Type	Description
0240	0x01	ARSCountryCorrespondance	D	ARS Country Correspondance 0 = Negative matching: No area code match -> Carrier is inserte 1 = Positive matching: Match on area code -> Carrier is inserte 2 = French matching: First digit of matched area code is repla by carrier code
0241	0x00	ARSInternationalPrefix	D	ARS international prefix code in BCD on : International prefix = 00 Adr 0241 = 0x00
024D - 0250 0251 - 0254 0255 - 0258 0259 - 025C	0x11,0x2F 0xFF,0xFF 0x11,0x0F, 0xFF,0xFF 0xFF,0xFF, 0xFF,0xFF 0xFF,0xFF, 0xFF,0xFF	BsNalExemptedNumber 1 BsNalExemptedNumber 2 BsNalExemptedNumber 3 BsNalExemptedNumber 4	D	Exempted numbers in BCD on the form: ExemptedNumber1 = 112 Addr 024D = 0x11 , Addr 024E = 0x2F Addr 024F = 0xFF , Addr 0250 = 0xFF
025D	0x00	ARSCheckEnable	D	ARS check configuration 1 = enable, 0 = disable
025E	0x00	ARSDeleteInternational Number	D	ARS delete international number configu 1 = enable, 0 = disable Also used for enabling/disabling French matching.
0261	0x00	BarredHandsets	D	Barred handsets configuration Bit 0: SpeakerPhone (TCD715/TCD735) 1: Handset 1, 2: Handset 2, 3: Handset 3 4: Handset 4, 5: Handset 5, 6: Handset 6
0262 - 0265 0266 - 0269 026A - 026D 026E - 0271 0272 - 0275 0276 - 0279	FF .. FF FF .. FF FF .. FF FF .. FF FF .. FF FF .. FF	BsNalBarredNumber 1 BsNalBarredNumber 2 BsNalBarredNumber 3 BsNalBarredNumber 4 BsNalBarredNumber 5 BsNalBarredNumber 6	D	Barred numbers in BCD on the form: Barred number 1 = 1234 Addr 0262 = 0x12 , Addr 0263 = 0x34 Addr 0264 = 0xFF , Addr 0265 = 0xFF

Address	Default	Name	Type	Description
027A - 027B 027C - 027D 027E - 027F 0280 - 0281 0282 - 0283 0284 - 0285 0286 - 0287 0288 - 0289	0xFF, 0xFF 0xFF, 0xFF 0xFF, 0xFF 0xFF, 0xFF 0xFF, 0xFF 0xFF, 0xFF 0xFF, 0xFF 0xFF, 0xFF	AKZ AccessCode 1 AKZ AccessCode 2 AKZ AccessCode 3 AKZ AccessCode 4 HAKZ AccessCode 1 HAKZ AccessCode 2 HAKZ AccessCode 3 HAKZ AccessCode 4	D	AccessCodes in BCD on the form: AKZ Code 1 = 12 Addr 027A = 0x12 , Addr 027B = 0xFF
028A - 028D 028E - 0291 0292 - 0295 0296 - 0299 029A - 029D	FF .. FF FF .. FF FF .. FF FF .. FF FF .. FF	ARSCarrierCode 1 ARSCarrierCode 2 ARSCarrierCode 3 ARSCarrierCode 4 ARSCarrierCode 5	D	ARS Carrier codes in BCD on the form ARS Carrier 1 = 1234 Addr 028A = 0x12 , Addr 028B = 0x34 Addr 028C = 0xFF , Addr 028D = 0xFF
029E - 02A0 02A1 - 02A3 ..... 02E6 - 02E8	FF, FF, F1 FF, FF, F1 ..... FF, FF, F1	ARSAreaCode 1 ARSAreaCode 2 ..... ARSAreaCode 25	D	ARS Area codes in BCD on the form ARS Area 1 = 1234 associated with ARS Carrier 1 Addr 029E = 0x12 , Addr 029F = 0x34 Addr 02A0 = 0xF1

14.3.6. PSTN Line

Address	Default	Name	Type	Description
0F00	03	UserCfg-1.Mode	D	User configuration (MMI) - mode settings 1 Bit 0 : "R" mode, 0=earth break, 1=loop breal 2..1: Dial mode, 00:pulse, 01:DTMF 3..7: Reserved
0F01	0D	UserCfg-2.Mode	D	User configuration (MMI) - mode settings 2 Bit 0..1: short "R" key time selection 00= short, 01=long, 10=extra-long 2..3: long "R" key time selection 00= short, 01=long, 10=extra-long, 11=undef (uses same time as specified fo R key) 4..7: Reserved Defaults to 0000 1101
0F02	10	UserCfg.RPauseTime	D	User configuration (MMI) - "R"-pause. If di normal dial pause (DialPauseTime) is used. Bit 7..0 : "R" pause time, zero value allowe Unit : 50 ms, defaults to 800 ms.
0F03	03	UserCfg.DialPauseTime	D	User configuration (MMI) - dial pause. Bit 3-0 : dial pause in 1 sec units , zero no allowed. Bit 7-4 : unused Defaults to 3 seconds
0F04	0F	Cfg-1	D	PSTN line configuration 1 (factory setting Bit 0: EarthBreakEnable , Earth break 1=enab disable 1: LoopBreakEnable, Loop break 1=enabl disable 2: PulseDialEnable, Pulse dial 1=enable 0 3: RPauseEnable, usage of "R" pause 1=e =disable 4: PulseType, 0=normal puls-type 1= ('0'=1 puls,..'9'=10 puls's). 5: InterDigitLowImp. controls interdigit impedance. 1: keep low-impedance during interdigit p 0: normal impedance during interdigit pau 6: LowImpLineSeizure. Special low-imp li seizure (Australian), 1=enable , 0=disable 7: TwoLines. line config 0=one line, 1=tw Defaults to 0000 0111B.

Address	Default	Name	Type	Description
0F05	15	Cfg-2		PSTN line configuration 2 (factory setting Bit 0: Meter-pulse, 1=enable, 0=disable 1: DialToneMode, dial tone detection 1=en disable 2: BusyToneMode. busy tone detection 1= =disable 3: CurrentLimiterMode, 1=enable, 0=disab 4: RingToneMode. Ring tone detection 1= =disable 5: HookRelayEnable, 1=enable, 0=disable port is used for earth-control EarthBreakEnable and HookRelayEnable cannot both be set to 1). 6..7: not used Defaults to 0001 0101B.
0F06	28	MakeTime	D	Pulse make time. Unit : 1 ms. defaults to 40 ms.
0F07	3C	BreakTime	D	Pulse break time Unit : 1 ms, defaults to 60 ms.
0F08	64	DtmfTime	D	DTMF tone pulse time. Unit : 1 ms, defaults to 100 ms.
0F09	0A	InterDigitDtmfTime	D	Inter-digit time in DTMF mode. Unit : 10 ms , defaults to 100ms.
0F0A	4A	InterDigitPulseTime	D	Inter-digit time in Pulse mode. Unit : 10 ms, defaults to 740 ms.
0F0B	8	CalibBreakTime[0]	D	Calibrated loop-break time for short break Unit : 10 ms, defaults to 80 ms.
0F0C	14	CalibBreakTime[1]	D	Calibrated loop-break time for long break Unit : 10 ms, defaults to 200 ms.
0F0D	46	CalibBreakTime[2]	D	Calibrated loop-break time for extra-long l Unit : 10 ms, defaults to 700 ms.
0F0E	28	CalibBreakTime[3]	D	Calibrated earth-break time for short brea Unit : 10 ms, defaults to 400 ms.
0F0F	82	CalibBreakTime[4]	D	Calibrated earth-break time for long break Unit : 10 ms, defaults to 1300 ms.
0F10	82	CalibBreakTime[5]	D	Calibrated earth-break time for extra-long Unit : 10 ms, defaults to 1300 ms.
0F11	FF	LineSeizureEndTime	D	Line seizure end-time - time after hook-on pulse detection continues during this period of time. 00h means 10 ms. Unit : 10 ms, defaults to 10 ms.

Address	Default	Name	Type	Description
0F12	64	RingTermToU100	D	Ring terminate time-out period. This is the time that must elapse between two ring-voltage bursts b new ring-voltage is registered as a new in call. Unit: 100 ms. defaults to approx 10 sec.
0F13	08	RingPatternToU100	D	Ring pattern timeout. Max. silence period distinctive ringing. As long as the silence does not exceed this period of time the rir considered and counted as one single rin Unit : 100 ms. Defaults to 800 ms
0F14	FF	AgcUpdateTime		Line AGC update time. The period of time each line AGC update. If FFh, line-AGC is disabled. I recommended value is 64h (1 sec). Unit : 10ms, min/max: 10/FF, Defaults to d
0F15	0A	LineSeizureTime		Line seizure time. The period of time that t PSTN line or the PSTN HW needs after the hook-switch is a in order to be ready. During this period audio is muted. (used during outgoing calls or if the special-line seizure is enabled (Cfg:6). Unit : 10 ms, min/max: 01/FF. Defaults to 1
0F16	66	InitDialPause	D	Init-dial-pause. Dial pause inserted after h when making an outgoing call. Bit 0..3: init dial pause if PULSE dial-mode then normal dial-pause is used. Bit 4..7: init dial pause if DTMF dial-mode. then normal dial-pause is used. Unit : 500 ms, min/max: 00/0F. Defaults to and 3 sec.
0F17..1BB	FF..FF	Reserved[5]	D	

14.3.7. Clip configuration

Address	Default	Name	Type	Description
0F37..38	3D 00	Parse.Configuration	D	Clip parse set configuration Bit 0: Etsi: 1=enable 0=disable 1: ForwardNumber: 1=enable 0=disable 2: Danish: 1=enable 0=disable 3: Dutch: 1=enable 0=disable 4: Canadian: 1=enable 0=disable 5: Swedish: 1=enable 0=disable 6: UserDefined: 1=enable 0=disable 7: KPN vmwi: 1=enable 0=disable 8: Reserved8 9: Reserved9 10: Reserved10 11: Reserved11 12: Reserved12 13: Reserved13 14: Reserved14 15: Reserved15

14.3.8. BsUiTask

Address	Default	Name	Type	Description
0FFD	(TCD715 /TCD735) 0xFF (TCD700/ TCD705/ TCD725) 0xF7	Config	D	BsUiTask configuration Bits 1=enable 0=disable 0: FlashTime1Enabled. 1: FlashTime2Enabled. 2: FlashTime3Enabled. 3: KeyClicksEnabled: TCD700 / TCD705 / TCD725: Default disab TCD715 / TCD735: Default enabled 4: ARSCarrierMenuEnabled. 5: ARSIntDeletionMenuEnabled. 6: ARSMultipleCarrierMenuEnabled. 7: ARSMultipleAreaCodeMenuEnabled.
0FFE	(step6) 0x01 (step5) 0x05	Kamma4BaseModelId	A	Kamma4 Base Model Identifier: 0x01 = TCD700 0x02 = TCD705 0x03 = TCD715 0x04 = TCD725 0x05 = TCD735

14.4. Appendix

14.4.1. Gain for transmit and receive

	[dB]		[dB]		[dB]		[dB]		[dB]
00 00	18.06	31 15	5.92	BB 22	-2.72	39 20	-11.02	48 D7	-29.51
00 01	16.90	21 41	5.73	AB 92	-2.92	A9 24	-11.20	98 C6	-29.97
00 02	16.26	0B 93	5.53	3A 15	-3.11	99 C2	-11.39	C6 D5	-30.40
00 03	15.92	12 C3	5.34	BA C0	-3.30	39 14	-11.58	C6 DE	-30.80
00 0D	15.47	21 BB	5.14	AB B5	-3.50	A9 22	-11.77	B8 E0	-31.26
00 0B	15.19	0A 94	4.94	19 35	-3.70	9A 0D	-11.91	38 E1	-31.58
00 11	14.81	0B 41	4.74	AB 31	-3.89	99 52	-12.39	48 E1	-32.08
00 12	14.40	32 10	4.54	2A 10	-4.08	C9 15	-12.88	A8 D7	-32.53
00 1D	13.92	22 23	4.35	AA A5	-4.28	99 33	-13.36	A8 DD	-32.88
00 21	13.53	31 B5	4.16	AA B1	-4.47	99 31	-13.84	CB E1	-33.16
00 2D	13.03	22 4B	3.97	AA BC	-4.68	A8 A5	-14.27	48 E2	-33.66
00 3C	12.54	22 CC	3.77	AA CA	-4.86	99 24	-14.72	28 E7	-34.12
01 10	12.04	32 21	3.59	B9 A3	-5.03	C8 B1	-15.10	48 E3	-34.57
00 BB	11.55	32 25	3.40	AA 42	-5.23	48 B2	-15.60	48 E4	-35.07
00 B3	11.41	23 30	3.20	AA 33	-5.41	28 B7	-16.06	48 E7	-35.53
00 B2	11.33	23 4A	3.01	39 44	-5.59	48 B3	-16.51	98 D6	-35.99
00 B1	11.19	23 B2	2.81	AA 25	-5.78	48 B4	-17.01	C6 E5	-36.42
01 13	11.04	32 B1	2.63	AA 22	-5.96	48 B7	-17.47	C6 EE	-36.82
00 A5	10.84	1B CB	2.43	B9 B5	-6.13	96 A6	-17.93	B8 D9	-37.28
00 A3	10.72	1B 41	2.24	39 33	-6.31	C8 B5	-18.36	A8 E3	-37.60
01 21	10.57	1B 30	2.05	9B 93	-6.51	C8 BE	-18.76	A8 E4	-38.10
01 22	10.40	33 B1	1.86	AA 14	-6.69	B8 C0	-19.22	A8 E7	-38.55
01 2D	10.22	33 A1	1.68	9B AD	-6.89	38 C1	-19.54	A8 ED	-38.90
01 31	10.07	33 93	1.49	9B C2	-7.08	48 C1	-20.03	C6 EA	-39.18
01 3C	9.88	1A 1C	1.29	9B 42	-7.28	A8 B7	-20.49	B8 EA	-39.78
01 4A	9.68	2B A5	1.09	9B 2C	-7.48	A8 B0	-20.84	98 E2	-40.21
02 0D	9.50	2B C1	0.89	B9 4B	-7.67	C8 C1	-21.12	98 E3	-41.12
10 CB	9.30	2B 44	0.70	A9 C2	-7.87	48 C2	-21.82	98 E4	-41.62
10 C1	9.13	3B 94	0.50	A9 CB	-8.06	26 C7	-22.08	98 E7	-42.08
10 B4	8.95	2B 21	0.30	9A C1	-8.25	48 C3	-22.63	98 ED	-42.42
01 A5	8.76	2B 15	0.11	99 95	-8.43	48 C4	-23.03	C8 E9	-42.70
02 21	8.59	3B CA	-0.08	9A 49	-8.61	48 C7	-23.49	B8 E9	-43.30
02 25	8.40	09 49	-0.28	9A 41	-8.80	96 B6	-23.95	A8 E9	-44.04
02 33	8.20	3B 24	-0.47	B9 31	-8.98	C8 C5	-24.38	29 0F	-46.23
02 49	8.01	1A 14	-0.67	9A 2B	-9.18	C8 CE	-24.78	39 0F	-47.14
02 C2	7.82	3B 13	-0.86	A9 41	-9.37	B8 D0	-25.24	49 0F	-47.64
02 B1	7.63	3A B2	-1.03	A9 3B	-9.53	38 D1	-25.56	98 E9	-48.16
20 BC	7.43	2A 2B	-1.22	A9 35	-9.72	48 D1	-26.05	C9 0F	-48.73
11 43	7.24	2A 23	-1.42	99 A3	-9.89	A8 C7	-26.51	B9 0F	-49.32
03 49	7.07	3A 4A	-1.61	B9 23	-10.05	A8 CD	-26.86	A9 0F	-50.66
21 14	6.88	09 31	-1.80	9A 14	-10.21	C8 D1	-27.14	99 0F	-54.19
11 BD	6.69	BB A4	-2.00	29 15	-10.36	48 D2	-27.64	88 00	-1”10010

									1”10^10
	[dB]		[dB]		[dB]		[dB]		[dB]
30 BD	6.50	BB BB	-2.19	99 B1	-10.55	28 D7	-28.10		
12 15	6.31	BB 4A	-2.38	29 14	-10.66	48 D3	-28.55		
21 2C	6.11	BB 31	-2.56	A9 2C	-10.84	48 D4	-29.05		

14.4.2. Gain for tonegenerator

	[dB]		[dB]		[dB]		[dB]		[dB]
00	6.02	1F	-6.09	35	-17.79	51	-26.58	6E	-36.26
01	3.52	1E	-6.16	36	-17.93	52	-28.16	6D	-36.40
02	1.94	1D	-6.30	37	-17.99	53	-29.08	6C	-36.68
03	1.02	1C	-6.58	40	-18.06	54	-29.58	6B	-37.28
04	0.53	1B	-7.18	3F	-18.13	55	-29.84	71	-38.62
05	0.27	21	-8.52	3E	-18.20	56	-29.97	72	-40.21
06	0.13	22	-10.10	3D	-18.34	57	-30.04	73	-41.12
07	0.07	23	-11.02	3C	-18.62	60	-30.10	74	-41.62
10	0.00	24	-11.51	3B	-19.22	5F	-30.17	75	-41.88
0F	-0.07	25	-11.77	41	-20.56	5E	-30.24	76	-42.01
0E	-0.14	26	-11.91	42	-22.14	5D	-30.38	77	-42.08
0D	-0.28	27	-11.97	43	-23.06	5C	-30.66	69	-42.14
0C	-0.56	30	-12.04	44	-23.56	5B	-31.26	7F	-42.21
0B	-1.16	2F	-12.11	45	-23.82	61	-32.60	7E	-42.28
11	-2.50	2E	-12.18	46	-23.95	62	-34.19	7D	-42.42
12	-4.08	2D	-12.32	47	-24.01	63	-35.10	7C	-42.70
13	-5.00	2C	-12.60	50	-24.08	64	-35.60	7B	-43.30
14	-5.49	2B	-13.20	4F	-24.15	65	-35.86	7A	-44.64
15	-5.75	31	-14.54	4E	-24.22	66	-35.99	79	-48.16
16	-5.89	32	-16.12	4D	-24.36	67	-36.06	08	-1”10^10
17	-5.95	33	-17.04	4C	-24.64	70	-36.12		
20	-6.02	34	-17.54	4B	-25.24	6F	-36.19		

14.4.3. Amplification by Shift & Add coeffecients

	[dB]		[dB]		[dB]		[dB]		[dB]
00	6.02	1F	-6.09	35	-17.79	51	-26.58	6E	-36.26
01	3.52	1E	-6.16	36	-17.93	52	-28.16	6D	-36.40
02	1.94	1D	-6.30	37	-17.99	53	-29.08	6C	-36.68
03	1.02	1C	-6.58	40	-18.06	54	-29.58	6B	-37.28
04	0.53	1B	-7.18	3F	-18.13	55	-29.84	71	-38.62
05	0.27	21	-8.52	3E	-18.20	56	-29.97	72	-40.21
06	0.13	22	-10.10	3D	-18.34	57	-30.04	73	-41.12
07	0.07	23	-11.02	3C	-18.62	60	-30.10	74	-41.62
10	0.00	24	-11.51	3B	-19.22	5F	-30.17	75	-41.88
0F	-0.07	25	-11.77	41	-20.56	5E	-30.24	76	-42.01
0E	-0.14	26	-11.91	42	-22.14	5D	-30.38	77	-42.08
0D	-0.28	27	-11.97	43	-23.06	5C	-30.66	69	-42.14
0C	-0.56	30	-12.04	44	-23.56	5B	-31.26	7F	-42.21
0B	-1.16	2F	-12.11	45	-23.82	61	-32.60	7E	-42.28

11	-2.50	2E	-12.18	46	-23.95	62	-34.19	7D	-42.42
12	-4.08	2D	-12.32	47	-24.01	63	-35.10	7C	-42.70
13	-5.00	2C	-12.60	50	-24.08	64	-35.60	7B	-43.30
14	-5.49	2B	-13.20	4F	-24.15	65	-35.86	7A	-44.64
15	-5.75	31	-14.54	4E	-24.22	66	-35.99	79	-48.16
16	-5.89	32	-16.12	4D	-24.36	67	-36.06	08	-1”10^10
17	-5.95	33	-17.04	4C	-24.64	70	-36.12		
20	-6.02	34	-17.54	4B	-25.24	6F	-36.19		

14.4.4. Gain index values

Index (dec)	Index (hex)	Gain (dB)	DspRam
0	0x00	-21	0xC8C1
1	0x01	-20	0x48C1
2	0x02	-19	0xB8C0
3	0x03	-18	0x98A6
4	0x04	-17	0x48B4
5	0x05	-16	0x28B7
6	0x06	-15	0xC8B1
7	0x07	-14	0x9931
8	0x08	-13	0xC915
9	0x09	-12	0x9A0D
10	0x0a	-11	0x3920
11	0x0b	-10	0xB923
12	0x0c	-9	0xB931
13	0x0d	-8	0xA9CB
14	0x0e	-7	0x9BC2
15	0x0f	-6	0xAA22
16	0x10	-5	0xB9A3
17	0x11	-4	0x2A10
18	0x12	-3	0xAB92
19	0x13	-2	0xBBA4
20	0x14	-1	0x3AB2
21	0x15	0	0x3BCA
22	0x16	+1	0x2BA5
23	0x17	+2	0x1B30
24	0x18	+3	0x234A
25	0x19	+4	0x224B
26	0x1A	+5	0x0A94
27	0x1B	+6	0x3115
28	0x1C	+7	0x0349
29	0x1D	+8	0x0249
30	0x1E	+9	0x10B4
31	0x1F	+10	0x0131
32	0x20	+11	0x0113
33	0x21	+12	0x0110
34	0x22	+13	0x002D
35	0x23	+14	0x001D
36	0x24	+15	0x0011
37	0x25	+16	0x0003
38	0x26	+17	0x0001
39	0x27	+18	0x0000

14.4.5. Speakerphone gain

DspRam	Index	Attenuation
0x02DA	0/0x00	-21 dB
0x0333	1/0x01	-20 dB
0x0397	2/0x02	-19 dB
0x0407	3/0x03	-18 dB
0x0485	4/0x04	-17 dB
0x0512	5/0x05	-16 dB
0x05B0	6/0x06	-15 dB
0x0662	7/0x07	-14 dB
0x072A	8/0x08	-13 dB
0x080A	9/0x09	-12 dB
0x0905	10/0x0a	-11 dB
0x0A1E	11/0x0b	-10 dB
0x0B5B	12/0x0c	-9 dB
0x0CBD	13/0x0d	-8 dB
0x0E4B	14/0x0e	-7 dB
0x100A	15/0x0f	-6 dB
0x11FF	16/0x10	-5 dB
0x1431	17/0x11	-4 dB
0x16A8	18/0x12	-3 dB
0x196C	19/0x13	-2 dB
0x1C86	20/0x14	-1 dB
0x2001	21/0x15	0 dB
0x23E8	22/0x16	+1 dB
0x284A	23/0x17	+2 dB
0x2D35	24/0x18	+3 dB
0x32B9	25/0x19	+4 dB
0x38E9	26/0x1A	+5 dB
0x3FDB	27/0x1B	+6 dB
0x47A6	28/0x1C	+7 dB
0x5064	29/0x1D	+8 dB
0x5A33	30/0x1E	+9 dB
0x6534	31/0x1F	+10 dB
0x718E	32/0x20	+11 dB
0x7F69	33/0x21	+12 dB

15. EEPROM LAYOUT (HANDSET)

15.1. Scope

The purpose of this section is to describe the layout of the EEPROM (IC2) TCD114 handset.

The EEPROM contains hardware, software, and user specific parameters. Some parameters are set during production of the handset e.g. crystal oscillator adjustment at 0000..01, some are set by the user when configuring the handset e.g. ringer volume at 0F38, and some during normal use of the phone e.g. redial memory at 0311..0392.

15.2. Introduction

The handset uses a 32k bit (4096 x 8) serial EEPROM (IC9) for storing volatile parameters. All parameters are set up before the handset the factory. Some of these are vital for the operation of the hardware so a set of default parameters is programmed before the actual hardware fine-tuning can be initiated. This document lists all default settings with a short description.
This document lists all default parameters with a short description.
In the tables below values in a range that are similar are not repeated; i.e. Address 00 to 01 contains the value 00 simply means that the value 00 is repeated in all addressee in the range.

Type	Name	Description
D	default	The EEPROM location is preset to the Default value by the eeprom default loader.
A	adjust	The EEPROM location is set during the production test and should not be overwritten. The value is set by the eeprom default loader only if the location contains 0xFF, i, e. it has never been set.
-		EEPROM location which is not set at all.

15.3. EEPROM contents

15.3.1. General Setup

Address	Default	Name	Type	Description
0000-0001	?? ??	EepromOscillator	A	Frequency adjustment ... ...
0002	20	ModulationDeviation	A	Mudulation adjustment
0030-0034	00 .. 00	IPEI	A	IPEI
0036-003A	?? .. ??	PARK_1	-	PARK for registration 1
003B-003F	?? .. ??	PARK_2	-	PARK for registration 2
0040-0044	?? .. ??	PARK_3	-	PARK for registration 3
0045-0049	?? .. ??	PARK_4	-	PARK for registration 4
004A	FF	PLI_1	D	Pli for registration 1. If set to FF the regist deleted.
004B	FF	PLI_2	D	Pli for registration 2. If set to FF the regist deleted.
004C	FF	PLI_3	D	Pli for registration 3. If set to FF the regist deleted.
004D	FF	PLI_4	D	Pli for registration 4. If set to FF the regist deleted.
0100-0104	?? .. ??	RFPI_1	-	RFPI for registration 1
0105	??	SerClass_1	-	Service class for registration 1

Address	Default	Name	Type	Description
0106	??	LAL_1	-	Location area level for registration 1
0107	??	IPUI_LEN_1	-	IPUI length for registration 1
0108-0114	?? .. ??	IPUI_1	-	IPUI for registration 1
0115	??	ZAP_1	-	ZAP for registration 1
0116	??	STATUS_1	-	Status for registration 1
0117-0126	?? .. ??	UAK_1	-	UAK for registration 1
0127-012F	?? .. ??	Reserved	-	Protocol data
0130-0134	?? .. ??	RFPI_2	-	RFPI for registration 2
0135	??	SerClass_2	-	Service class for registration 2
0136	??	LAL_2	-	Location area level for registration 2
0137	??	IPUI_LEN_2	-	IPUI length for registration 2
0138-0144	?? .. ??	IPUI_2	-	IPUI for registration 2
0145	??	ZAP_2	-	ZAP for registration 2
0146	??	STATUS_2	-	Status for registration 2
0147-0156	?? .. ??	UAK_2	-	UAK for registration 2
0157-015F	?? .. ??	Reserved	-	Protocol data
0160-0164	?? .. ??	RFPI_3	-	RFPI for registration 3
0165	??	SerClass_3	-	Service class for registration 3
0166	??	LAL_3	-	Location area level for registration 3
0167	??	IPUI_LEN_3	-	IPUI length for registration 3
0168-0174	?? .. ??	IPUI_3	-	IPUI for registration 3
0175	??	ZAP_3	-	ZAP for registration 3
0176	??	STATUS_3	-	Status for registration 3
0177-0186	?? .. ??	UAK_3	-	UAK for registration 3
0187-018F	?? .. ??	Reserved	-	Protocol data
0190-0194	?? .. ??	RFPI_4	-	RFPI for registration 4
0195	??	SerClass_4	-	Service class for registration 4
0196	??	LAL_4	-	Location area level for registration 4
0197	??	IPUI_LEN_4	-	IPUI length for registration 4
0198-01A4	?? .. ??	IPUI_4	-	IPUI for registration 4
01A5	??	ZAP_4	-	ZAP for registration 4
01A6	??	STATUS_4	-	Status for registration 4
01A7-01B6	?? .. ??	UAK_4	-	UAK for registration 4
01B7-01FF	?? .. ??	Reserved	-	Protocol data

15.3.2. MMI parameters

Address	Default	Name	Type	Description
200 - 303	200 = 00 20D = 00 21A = 00 227 = 00 234 = 00 241 = 00 24E = 00 25B = 00 268 = 00 275 = 00 282 = 00 28F = 00 29C = 00 2A9 = 00 2B6 = 00 2C3 = 00 2D0 = 00 2DD = 00 2EA = 00 2F7 = 00	SpeedDial	D	The first byte in every entry is the length c speeddialnumber. The next 12 bytes is the 24 digits. every di bytes and stored in BCD + some special characters. 200 - 20E - SpeedDialEntry 0 20D - 219 - SpeedDialEntry 1 21A - 226 - SpeedDialEntry 2 227 - 233 - SpeedDialEntry 3 234 - 240 - SpeedDialEntry 4 241 - 24C - SpeedDialEntry 5 24E - 25A - SpeedDialEntry 6 25B - 267 - SpeedDialEntry 7 268 - 274 - SpeedDialEntry 8 275 - 281 - SpeedDialEntry 9 282 - 28E - SpeedDialEntry 10 28F - 29B - SpeedDialEntry 11 29C - 2A8 - SpeedDialEntry 12 2A9 - 2B6 - SpeedDialEntry 13 2B6 - 2C2 - SpeedDialEntry 14 2C3 - 2EF - SpeedDialEntry 15 2D0 - 2DC - SpeedDialEntry 16 2DD - 2E9 - SpeedDialEntry 17 2EA - 2F6 - SpeedDialEntry 18 2F7 - 303 - SpeedDialEntry 19
304 - 310	304 = 00	DirectCallEntry	D	The first byte is the length of the speeddialnumber. The next 12 bytes is the 24 digits. every di bytes and stored in BCD + some special characters.
311 - 392	--	Redial	D	RedialList containing max. 10 entries. Allocation is controlled by RedialFAT (EepromInRam).
393 - 394	--	MMIGap	-	
395 - 39D	FF	HotKey	D	index 0 - speeddialentry for key 0 index 1 - speeddialentry for key 1 - index 9 - speeddialentry for key 9
39E - 39F	--	HSPinCode	-	4 BCD Digits
3A0	00	EESubscriptionNumber	D	Selected subscription
3A1 - 3A8	00	EESubscriptionInfo	D	HandsetNumber And BaseType for all subscriptions.
3A9 - 3AA	FF FF	AlarmTime	D	4 BCD Digits Hours Tens,Units : Minutes Tens,Units

Address	Default	Name	Type	Description
3AB	00	AlarmConfig	D	bit1 + bit2 - Settings for OFF, ONCE and D 00 - OFF 01 - ONCE 10 - DAILY
3AC - 3AF	00	TotalHandsetCharge	D	holds the chargecostcount since last han reset or callcost-reset (32bit).
3B0	00	Language	D	00 = English. 01 = Command menu texts. (No support o masked model).
3B1 - 3CF	--	MMIGap	-	
3D0	00	RunTimeErrorLogConfig	D	00 = Show RunTimeErrorLog disabled.
3D1 - 3D2	0000	RunTimeErrorLogAddress	D	0000 = No error.
3D3 - AD5	--	MMIGap	-	

15.3.3. Audio MMI

Address	Default	Name	Type	Description
AD6 - AFF	--	MelodyTable	-	Table telling start of each melody + end + melody (21 * 2 byte)
B00 - EFF	--	Melodies	-	Ringermelodies Each melody are stored in the following fo Byte0, high: 1 - follow cadence / 0 - finish Byte0,low: Changing key data (0x0 ~ 0xF Byte1,high: Freq-offset for volume 1 (0x0 Byte1,low: Freq-offset for volume 2 (0x0 - Byte2,high: Freq-offset for volume 3 (0x0 Byte2,low: Freq-offset for volume 4 (0x0 - Byte3,high: Freq-offset for volume 5 (0x0 Byte3,low: Freq-offset for volume 6 (0x0 - byte 4:Tempo byte 5+: Melody

15.3.4. MMI Bits

Address	Default	Name	Type	Description
F00	0B	EEToneConfig	D	bit 0 - Keytone on/off - 1/0 bit 1 - Call waiting on/off - 1/0 bit 2 - Range alarm on/off - 1/0 bit 3 - Battery low alarm on/off - 1/0
F01	06	UIConfig00	D	bit 0 - Direct call 1 = on /0 = off bit 1 - StandbyDisplay00 00 = Off / 01 = Cl bit 2 - StandbyDisplay01 10 = PpNo / 11 = bit 3 - BatteryType 1 = Ni-Cd/0 = Ni-Mh bit 4 - Call barring bit 5 - Autio talk bit 6 - TalkmodeDisplay00 00 = Talk time bit 7 - TalkmodeDisplay01 01 = Talk cost 10 = Phone number
F02	00	CallCostEnabled	D	00 = CallCost Disabled 01 = CallCost Enabled
F03	--	UIGap01	-	

15.3.5. VolumeSettings

Address	Default	Name	Type	Description
F2A	10	BeepVolSetting	D	Soundlevel of buzzerbeeps, who is not aff by the ringervolume. Hightime = Cycle/VolumeLevel
F2B	0A	VolumeLevel1	D	Hightime = Cycle/VolumeLevel
F2C	08	VolumeLevel2	D	Hightime = Cycle/VolumeLevel
F2D	07	VolumeLevel3	D	Hightime = Cycle/VolumeLevel
F2E	06	VolumeLevel4	D	Hightime = Cycle/VolumeLevel
F2F	05	VolumeLevel5	D	Hightime = Cycle/VolumeLevel
F30	04	VolumeLevel6	D	Hightime = Cycle/VolumeLevel

nb. There is no restriction in range. That is if a value is put in, who is too high, the hightime will become
zero and therefore only clickingsounds will be heard.

15.3.6. Default audio-parameters

Address	Default	Name	Type	Description
F31	16	GX-index	D	Gain-transmit (values ranging from 0x00 t each step representing 1 dB)
F32	1B	GR-index	D	Gain-receive (values ranging from 0x00 to each step representing 1 dB)
F33	04	SideToneGain	D	SideToneGain (T67DSP-PPV2xD4-7600, ta

15.3.7. Melody-parameters

Address	Default	Name	Type	Description
F34	01	ExtMelodyIndex	D	Melody played when incoming external ca
F35	01	IntMelodyIndex	D	Melody played when incoming internal cal
F36	01	PageMelodyIndex	D	Melody played when paging
F37	01	AlarmMelodyindex	D	Melody played when alarm is sounded
F38	03	EERingerVolume	D	Volume of the ringer (1 - 6)
F39	02	EEVoiceVolume	D	Volume of the earpice (1 - 3)

16. SCHEMATIC DIAGRAM (BASE UNIT)

16.1. Line Interface

16.2. Base Band

16.3. RF MODULE (BASE)

17. SCHEMATIC DIAGRAM (HANDSET)

17.1. Handset

17.2. RF SECTION (HANDSET)

18. CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM (BASE UNIT)

18.1. Component View

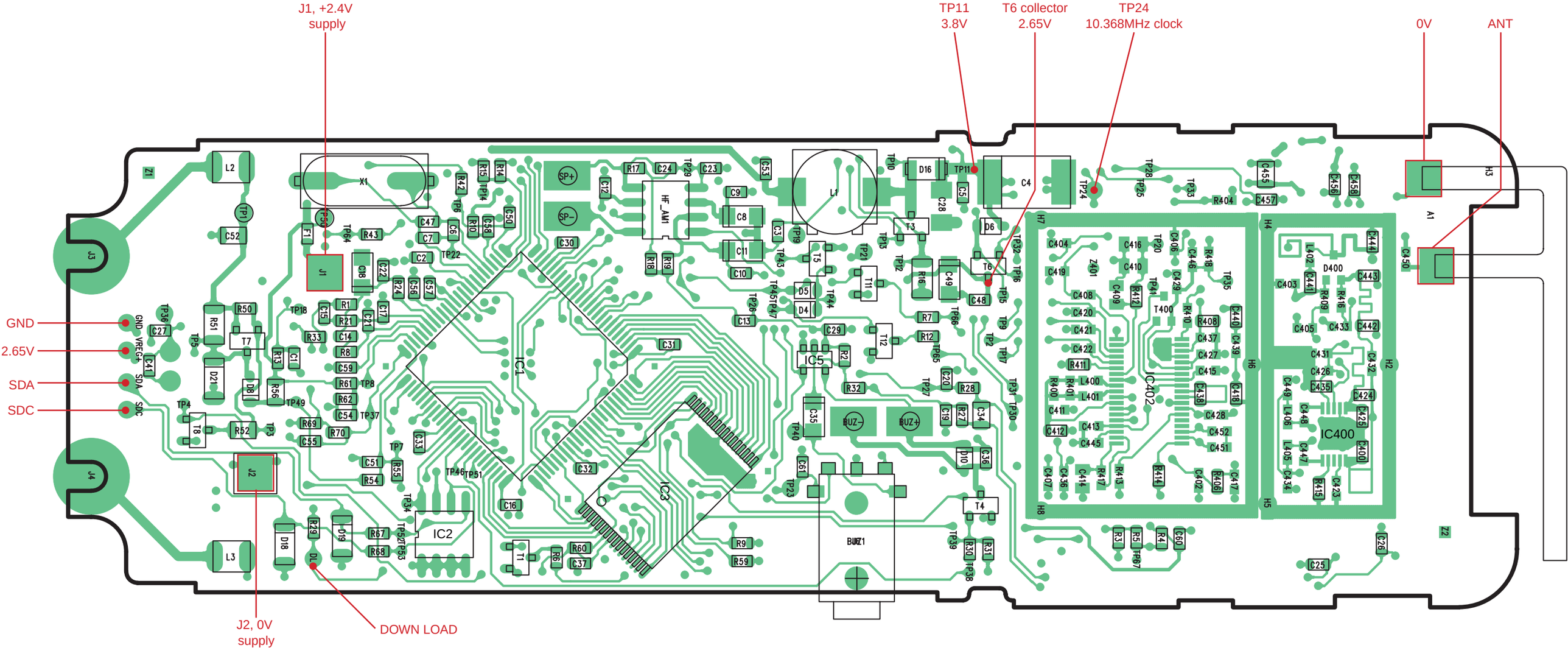
18.2. Flow Solder Side View

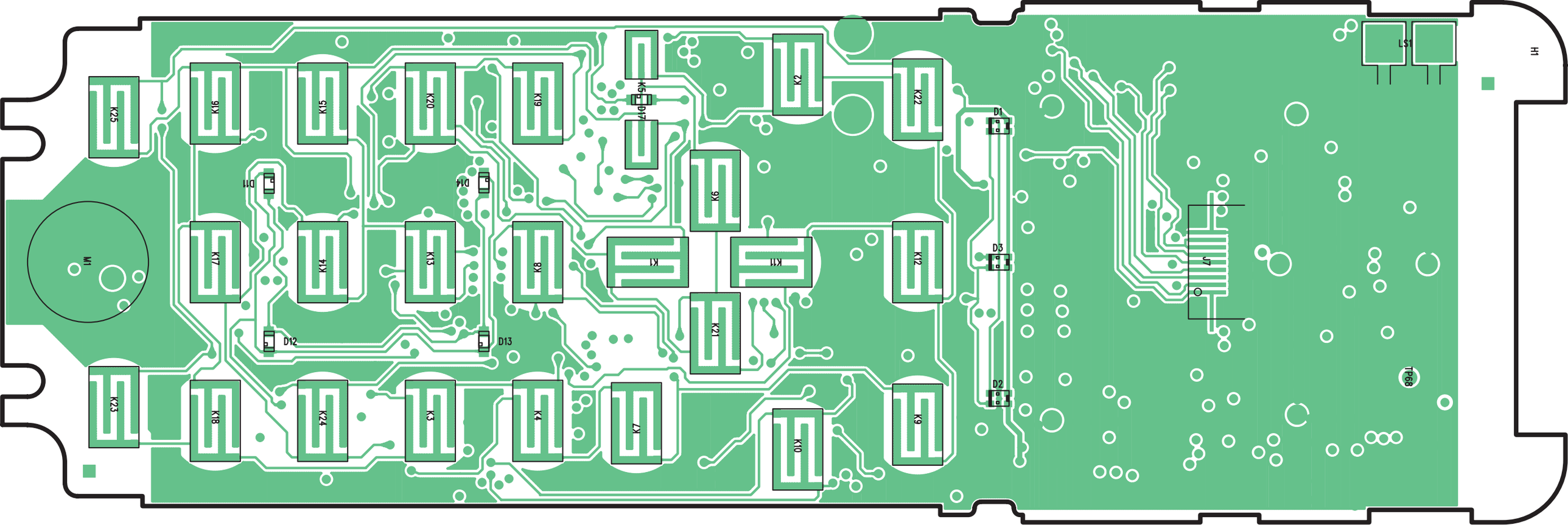
19. CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM (HANDSET)

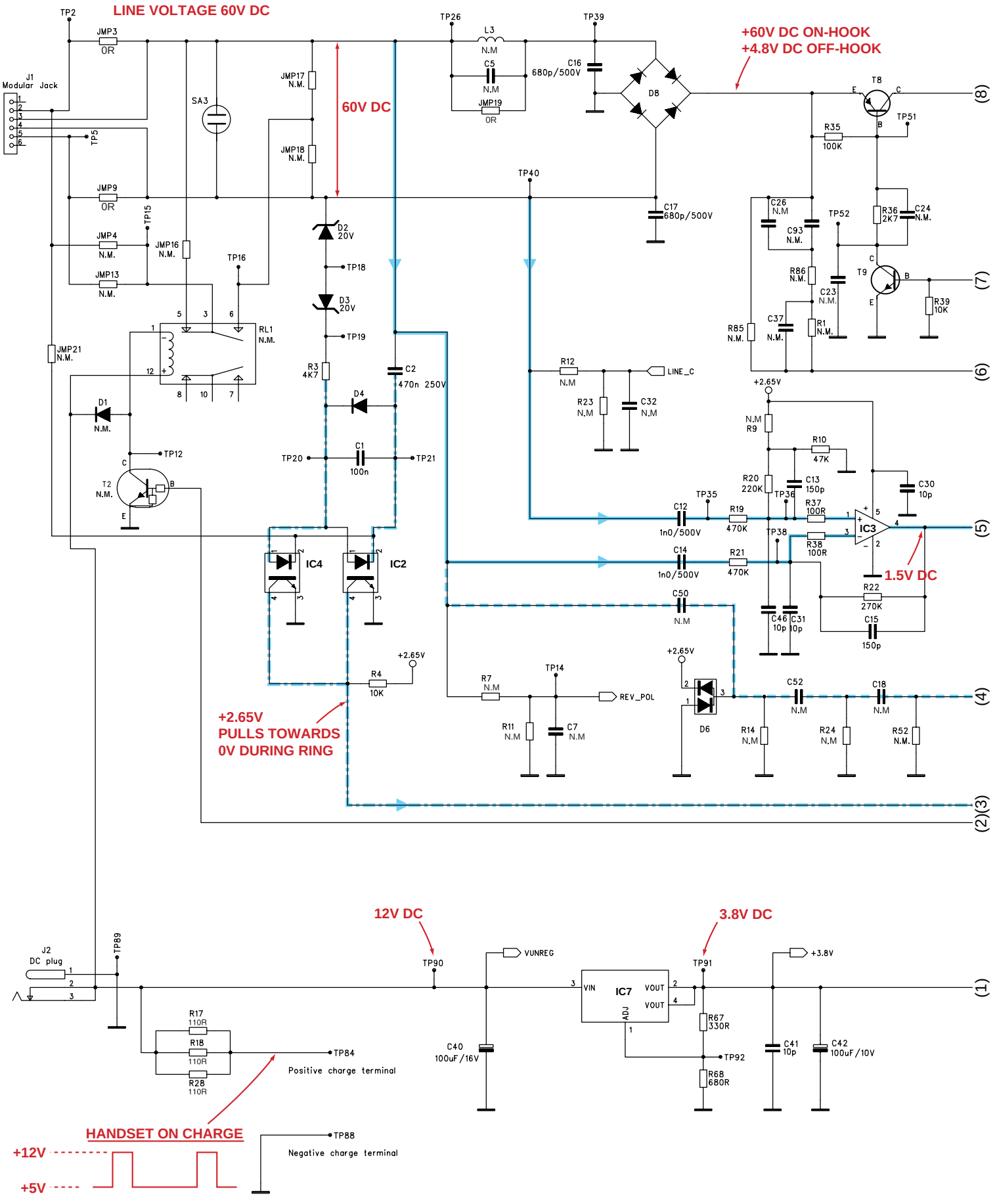
19.1. Component View

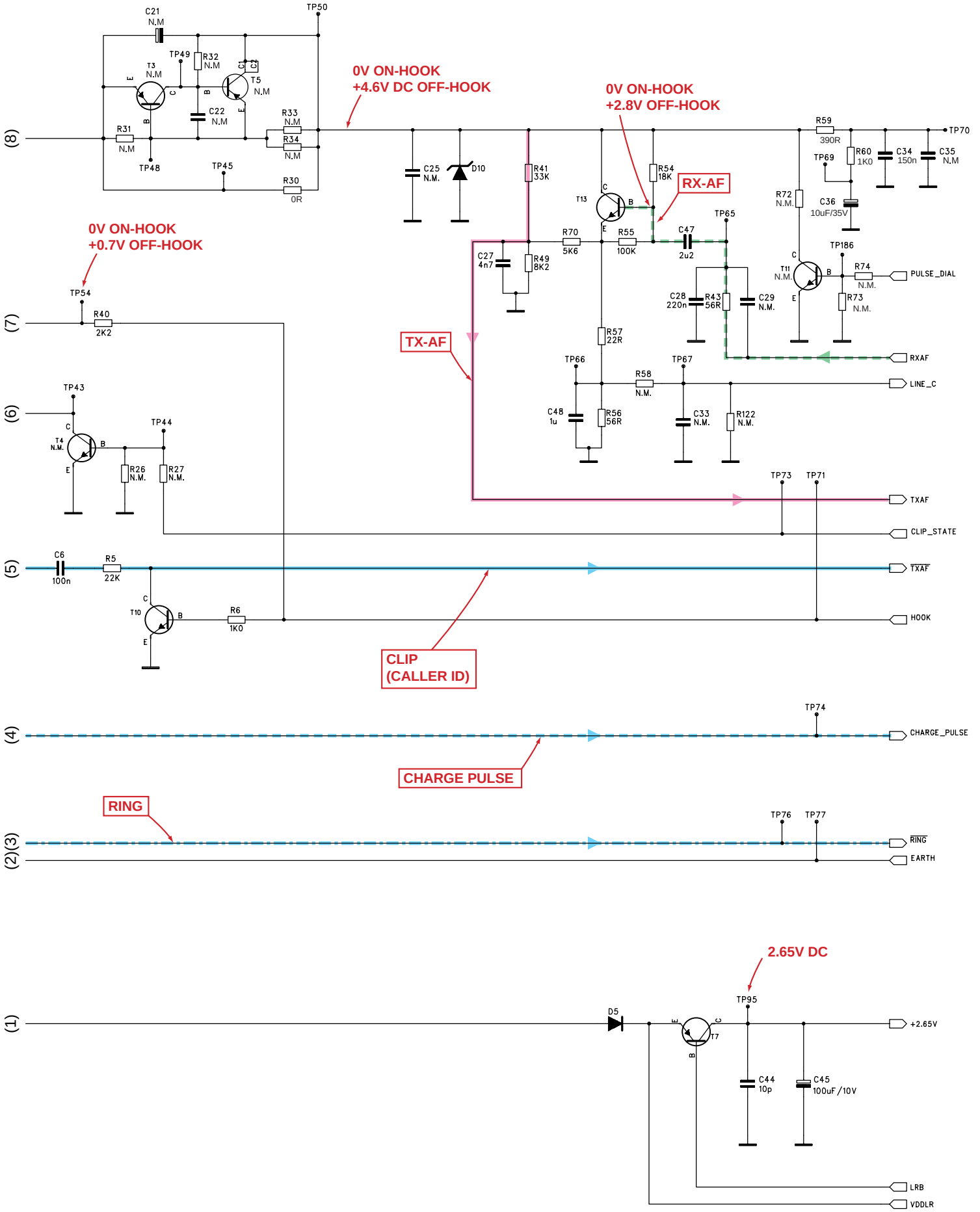
19.2. Flow Solder Side View

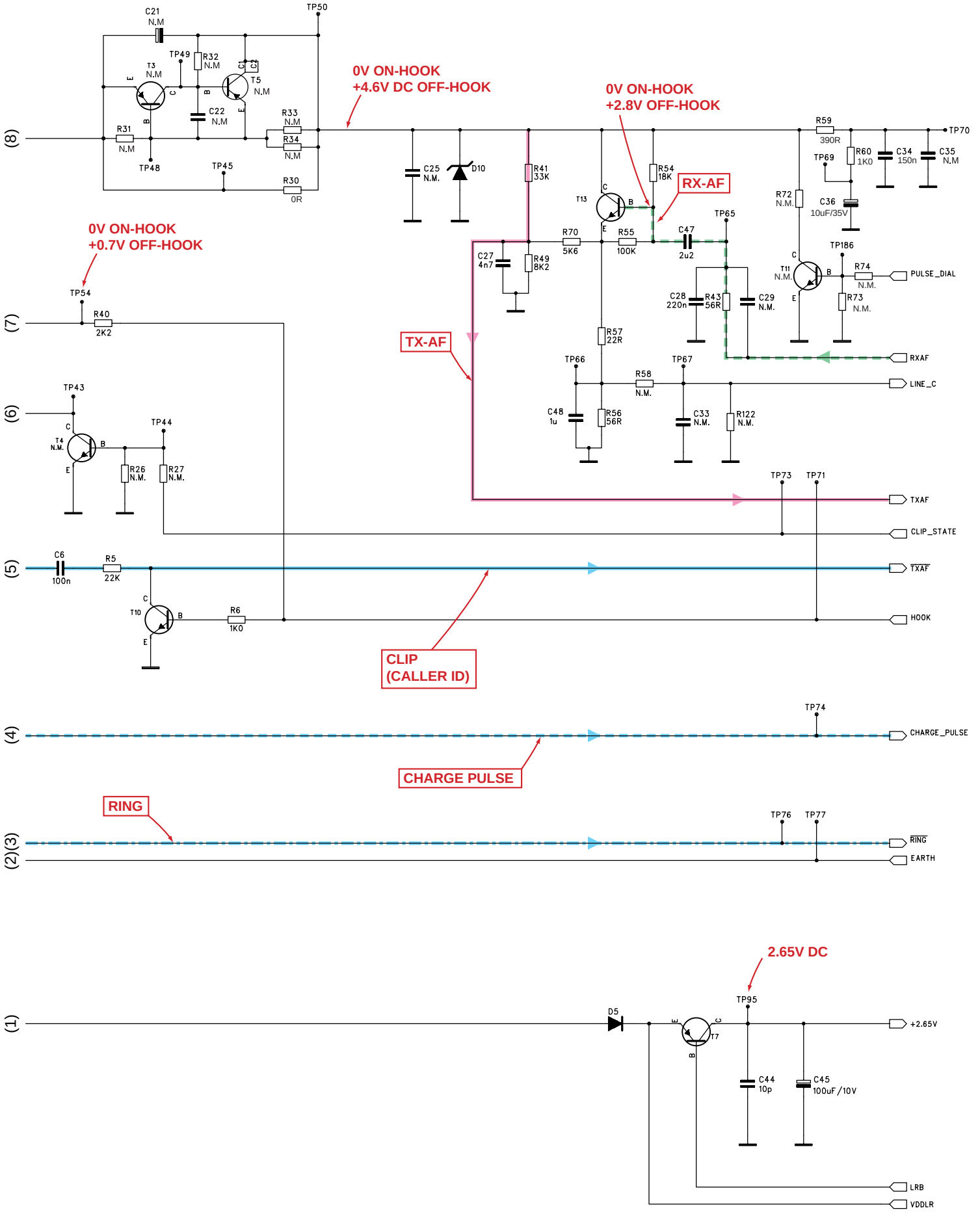
H.M / KXTCD700NEB-UK / Printed in Japan

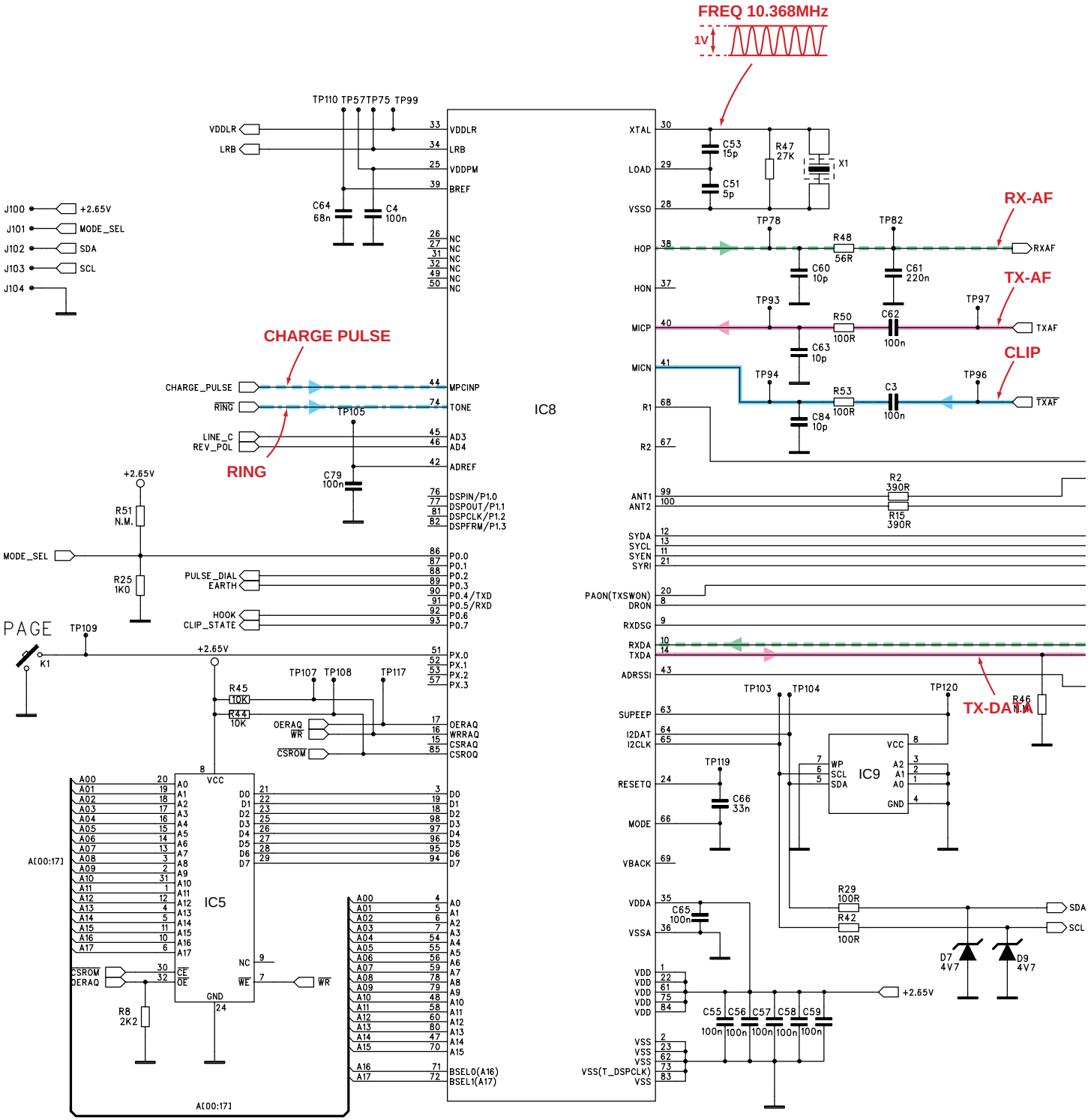

J1, +2.4V supply
TP11 3.8V
T6 collector 2.65V
TP24 10.368MHz clock
0V
ANT
GND
2.65V
SDA
SDC
J2, 0V supply
DOWN LOAD
IC1
IC2
IC3
IC5
IC400
IC402
HF_AM1
BUZ1
J1
J2
J3
J4
X1
L1
L2
L3
T1
T2
T3
T4
T5
T6
T7
T8
T11
T12
T400
D400
D16
D18
D19
D21
Z1
Z2
Z401
A1
H2
H3
H4
H5
H6
H7
H8

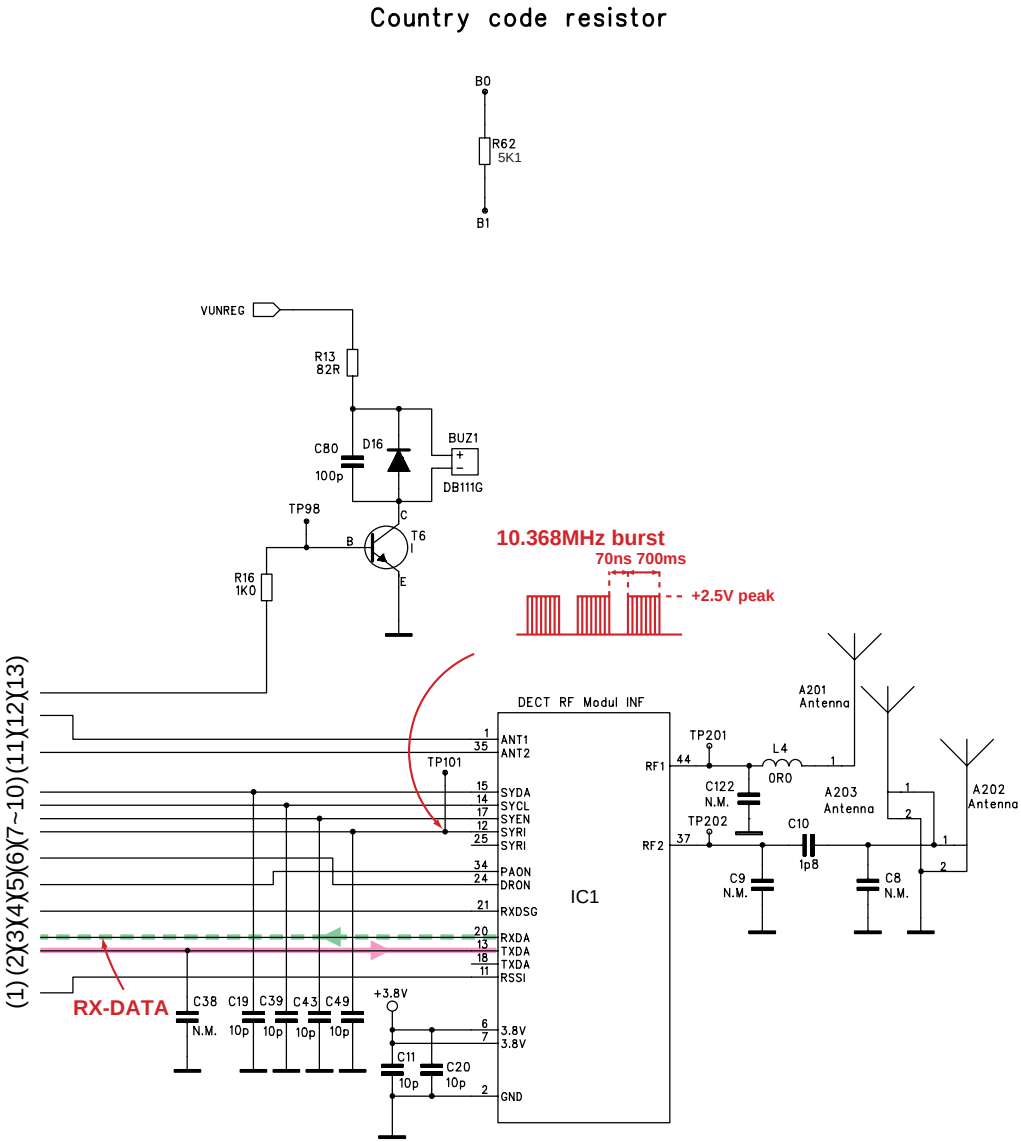

K25
K16
K15
K20
K19
K5
K2
K22
D1
D11
D14
K6
K17
K14
K13
K8
K1
K11
K12
D3
M1
J7
D12
D13
K21
K23
K18
K24
K3
K4
K7
K10
K9
D2
LS1
H1
TP68

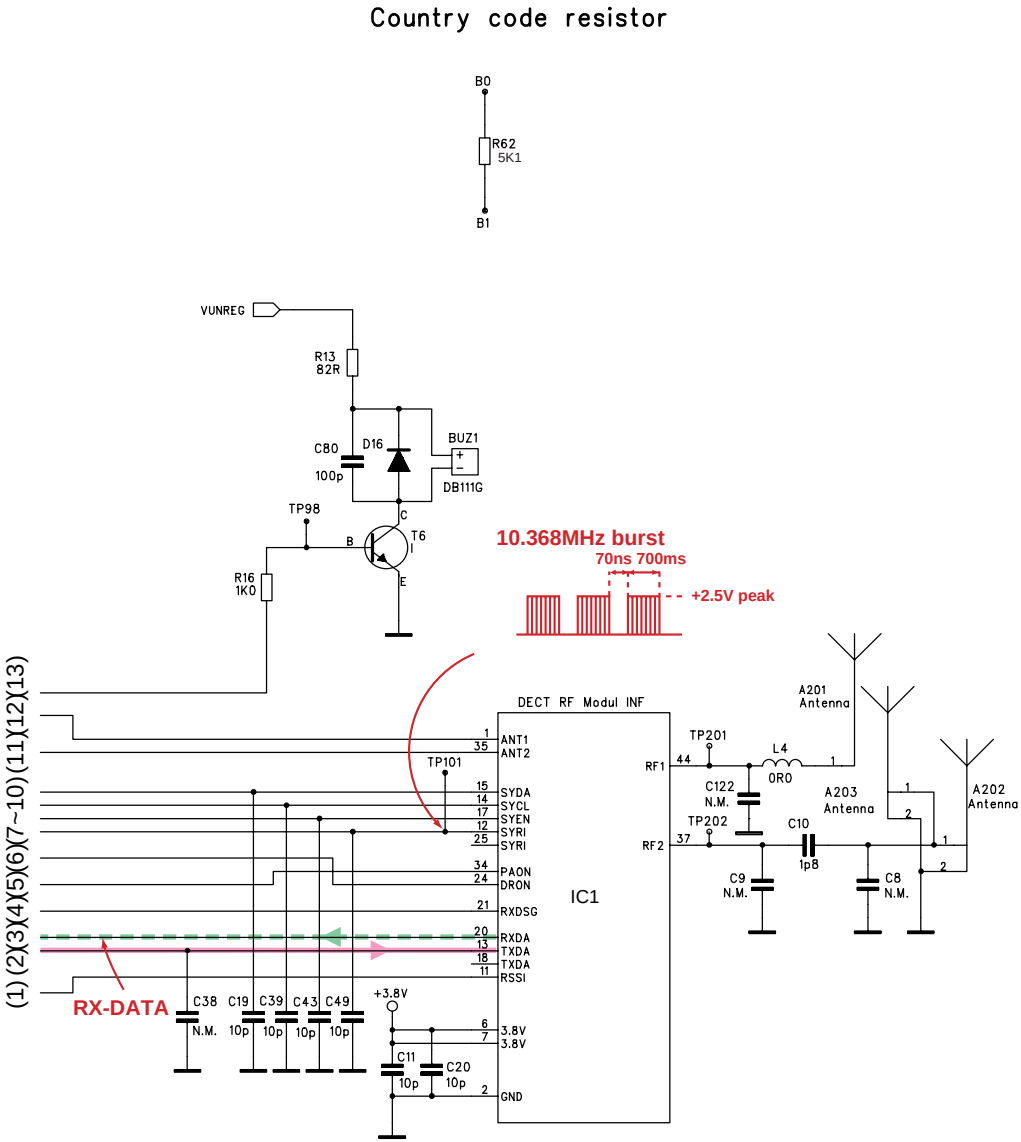

LINE VOLTAGE 60V DC
60V DC
+60V DC ON-HOOK
+4.8V DC OFF-HOOK
1.5V DC
+2.65V
PULLS TOWARDS
0V DURING RING
12V DC
3.8V DC
HANDSET ON CHARGE
+12V
+5V
Positive charge terminal
Negative charge terminal
LINE_C
REV_POL
VUNREG
+3.8V
IC2
IC3
IC4
IC7
D6
D8
RL1
T2
T8
T9
J1
Modular Jack
J2
DC plug
SA3
TP2
TP5
TP12
TP15
TP16
TP18
TP19
TP20
TP21
TP26
TP35
TP36
TP38
TP39
TP40
TP51
TP52
TP84
TP88
TP89
TP90
TP91
TP92
JMP3
JMP4
JMP9
JMP13
JMP16
JMP17
JMP18
JMP19
JMP21
L3
C1
C2
C5
C12
C13
C14
C15
C16
C17
C18
C23
C24
C26
C30
C31
C32
C37
C40
C41
C42
C46
C50
C52
C93
D1
D2
D3
D4
R1
R3
R4
R7
R9
R10
R11
R12
R14
R17
R18
R19
R20
R21
R22
R23
R24
R28
R35
R36
R37
R38
R39
R52
R67
R68
R85
R86
0R
N.M
N.M.
47K
100K
100n
100R
110R
150p
220K
270K
330R
470K
680R
680p/500V
1n0/500V
2K7
4K7
10K
10p
100uF/16V
470n 250V
2.65V
1.5V
3.8V
12V
5V
(1)
(2)(3)
(4)
(5)
(6)
(7)
(8)

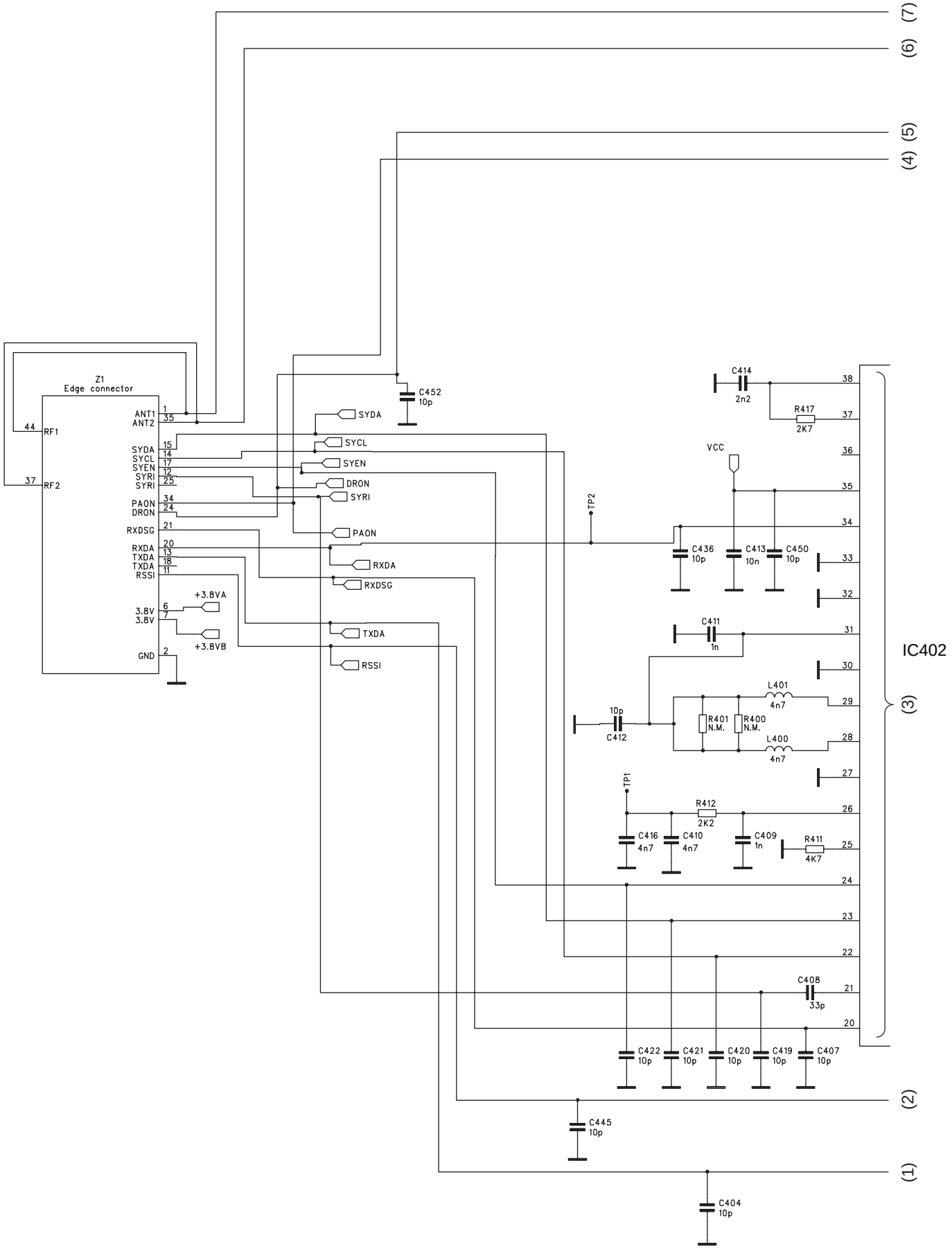

0V ON-HOOK
+4.6V DC OFF-HOOK
0V ON-HOOK
+2.8V OFF-HOOK
0V ON-HOOK
+0.7V OFF-HOOK
RX-AF
TX-AF
CLIP
(CALLER ID)
CHARGE PULSE
RING
2.65V DC
(8)
(7)
(6)
(5)
(4)
(2)(3)
(1)
C21 N.M
TP50
TP49
R32 N.M
T3 N.M
T5 N.M
C22 N.M
R33 N.M
R34 N.M
R31 N.M
TP48
TP45
R30 0R
C25 N.M.
D10
R41 33K
R54 18K
T13
R59 390R
TP70
TP69
R60 1K0
C34 150n
C35 N.M
C36 10uF/35V
R72 N.M.
TP65
C47 2u2
R70 5K6
R55 100K
C27 4n7
R49 8K2
TP186
T11 N.M.
R74 N.M.
R73 N.M.
PULSE_DIAL
C28 220n
R43 56R
C29 N.M.
TP54
R40 2K2
R57 22R
TP66
TP67
R58 N.M.
RXAF
LINE_C
C48 1u
R56 56R
C33 N.M.
R122 N.M.
TP43
T4 N.M.
TP44
R26 N.M.
R27 N.M.
TP73
TP71
TXAF
CLIP_STATE
C6 100n
R5 22K
T10
R6 1K0
TXAF
HOOK
TP74
CHARGE_PULSE
TP76
TP77
RING
EARTH
D5
T7
TP95
+2.65V
C44 10p
C45 100uF/10V
LRB
VDDLR

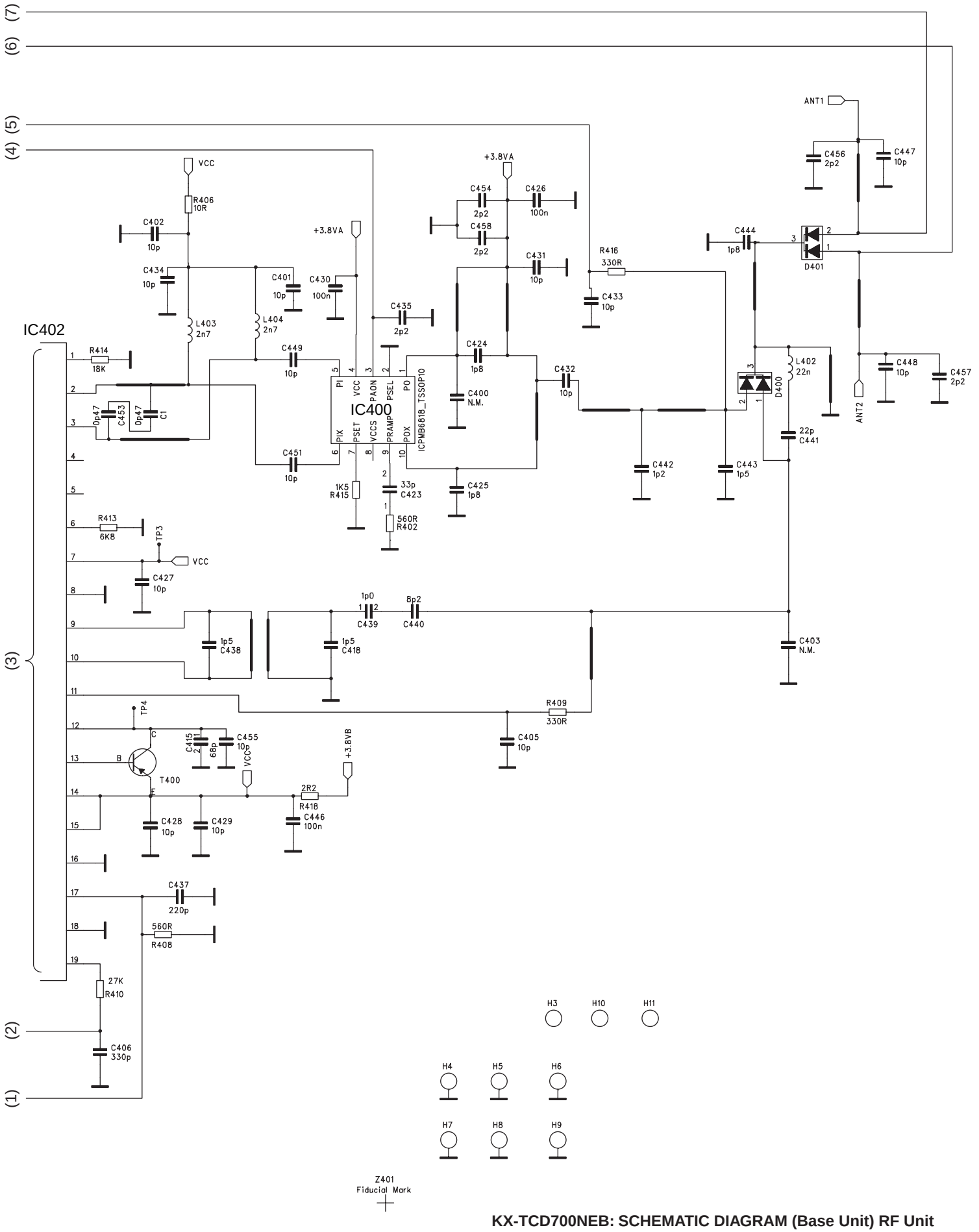

0V ON-HOOK
+4.6V DC OFF-HOOK
0V ON-HOOK
+2.8V OFF-HOOK
0V ON-HOOK
+0.7V OFF-HOOK
RX-AF
TX-AF
CLIP
(CALLER ID)
CHARGE PULSE
RING
2.65V DC
(8)
(7)
(6)
(5)
(4)
(2)(3)
(1)
C21 N.M
TP50
TP49
R32 N.M
T3 N.M
T5 N.M
C22 N.M
R33 N.M
R34 N.M
R31 N.M
TP48
TP45
R30 0R
C25 N.M.
D10
R41 33K
R54 18K
T13
R59 390R
TP70
TP69
R60 1K0
C34 150n
C35 N.M
C36 10uF/35V
R72 N.M.
TP65
C47 2u2
R70 5K6
R55 100K
C27 4n7
R49 8K2
TP186
T11 N.M.
R74 N.M.
R73 N.M.
PULSE_DIAL
C28 220n
R43 56R
C29 N.M.
TP54
R40 2K2
R57 22R
TP66
TP67
R58 N.M.
RXAF
LINE_C
C48 1u
R56 56R
C33 N.M.
R122 N.M.
TP43
T4 N.M.
TP44
R26 N.M.
R27 N.M.
TP73
TP71
TXAF
CLIP_STATE
C6 100n
R5 22K
T10
R6 1K0
TXAF
HOOK
TP74
CHARGE_PULSE
TP76
TP77
RING
EARTH
D5
T7
TP95
+2.65V
C44 10p
C45 100uF/10V
LRB
VDDLR

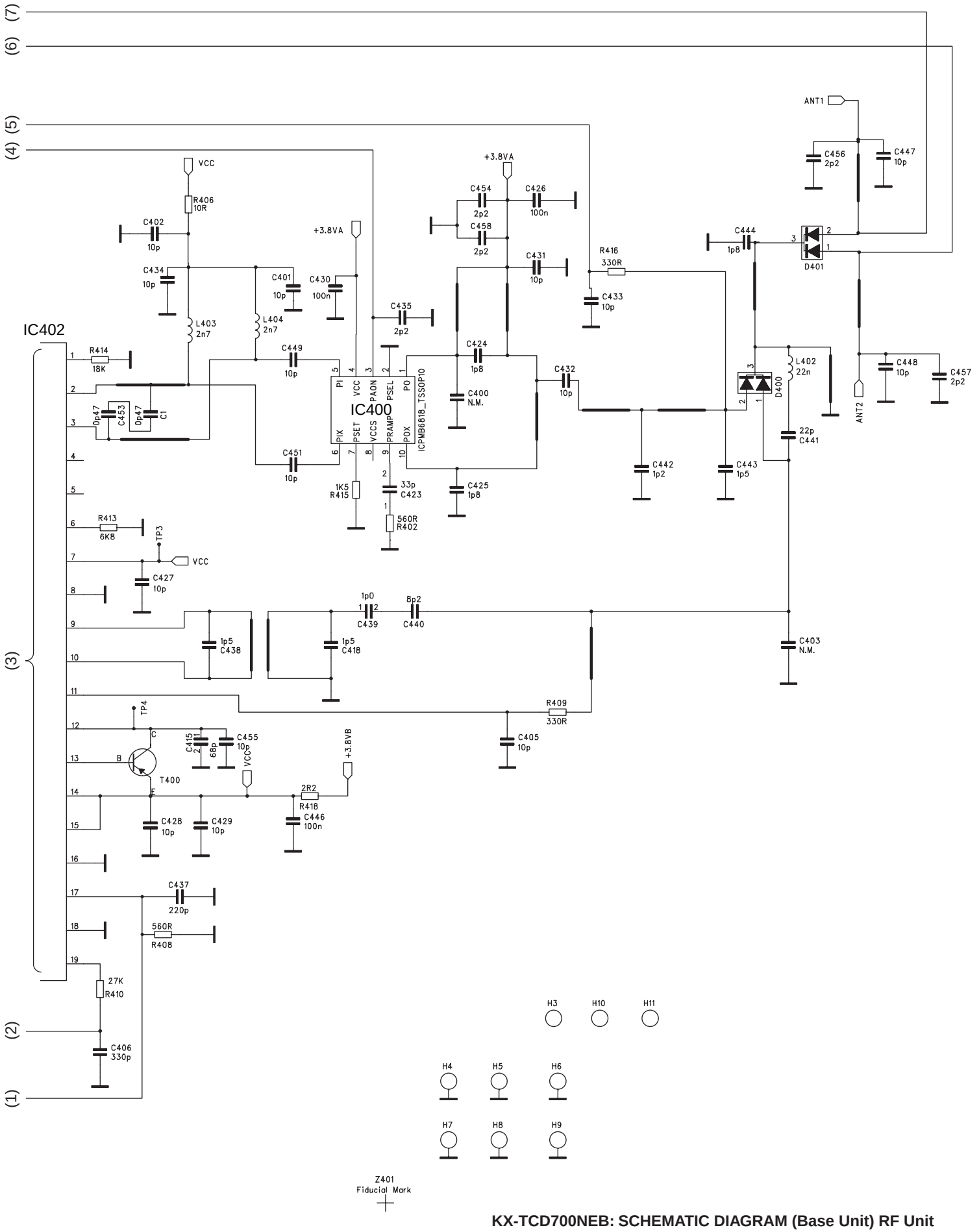

FREQ 10.368MHz
1V
IC8
IC5
IC9
RX-AF
TX-AF
CLIP
TX-DATA
CHARGE PULSE
RING
PAGE
TP110 TP57TP75 TP99
VDDLR
LRB
VDDPM
BREF
J100 +2.65V
J101 MODE_SEL
J102 SDA
J103 SCL
J104
C64 68n
C4 100n
C53 15p
C51 5p
R47 27K
X1
R48 56R
C60 10p
C61 220n
C62 100n
C63 10p
C84 10p
R50 100R
R53 100R
C3 100n
R2 390R
R15 390R
R46 N.M.
TP78
TP82
TP93
TP97
TP94
TP96
TP103
TP104
TP120
TP119
C66 33n
C65 100n
R29 100R
R42 100R
D7 4V7
D9 4V7
C55 C56 C57 C58 C59 100n
+2.65V
CHARGE_PULSE
RING
LINE_C
REV_POL
TP105
C79 100n
ADREF
DSPIN/P1.0
DSPOUT/P1.1
DSPCLK/P1.2
DSPFRM/P1.3
MPCINP
TONE
AD3
AD4
R51 N.M.
R25 1K0
MODE_SEL
PULSE_DIAL
EARTH
HOOK
CLIP_STATE
TP109
K1
TP107 TP108 TP117
R45 10K
R44 10K
OERAQ
WRRAQ
CSRAQ
CSROQ
WR
CSROM
A[00:17]
R8 2K2
BSEL0(A16)
BSEL1(A17)
XTAL
LOAD
VSSO
HOP
HON
MICP
MICN
R1
R2
ANT1
ANT2
SYDA
SYCL
SYEN
SYRI
PAON(TXSWON)
DRON
RXDSG
RXDA
TXDA
ADRSSI
SUPEEP
I2DAT
I2CLK
RESETQ
MODE
VBACK
VDDA
VSSA
VDD
VSS
VSS(T_DSPCLK)
RXAF
TXAF
SDA
SCL
(1) (2)(3)(4)(5)(6)(7~10) (11)(12)(13)

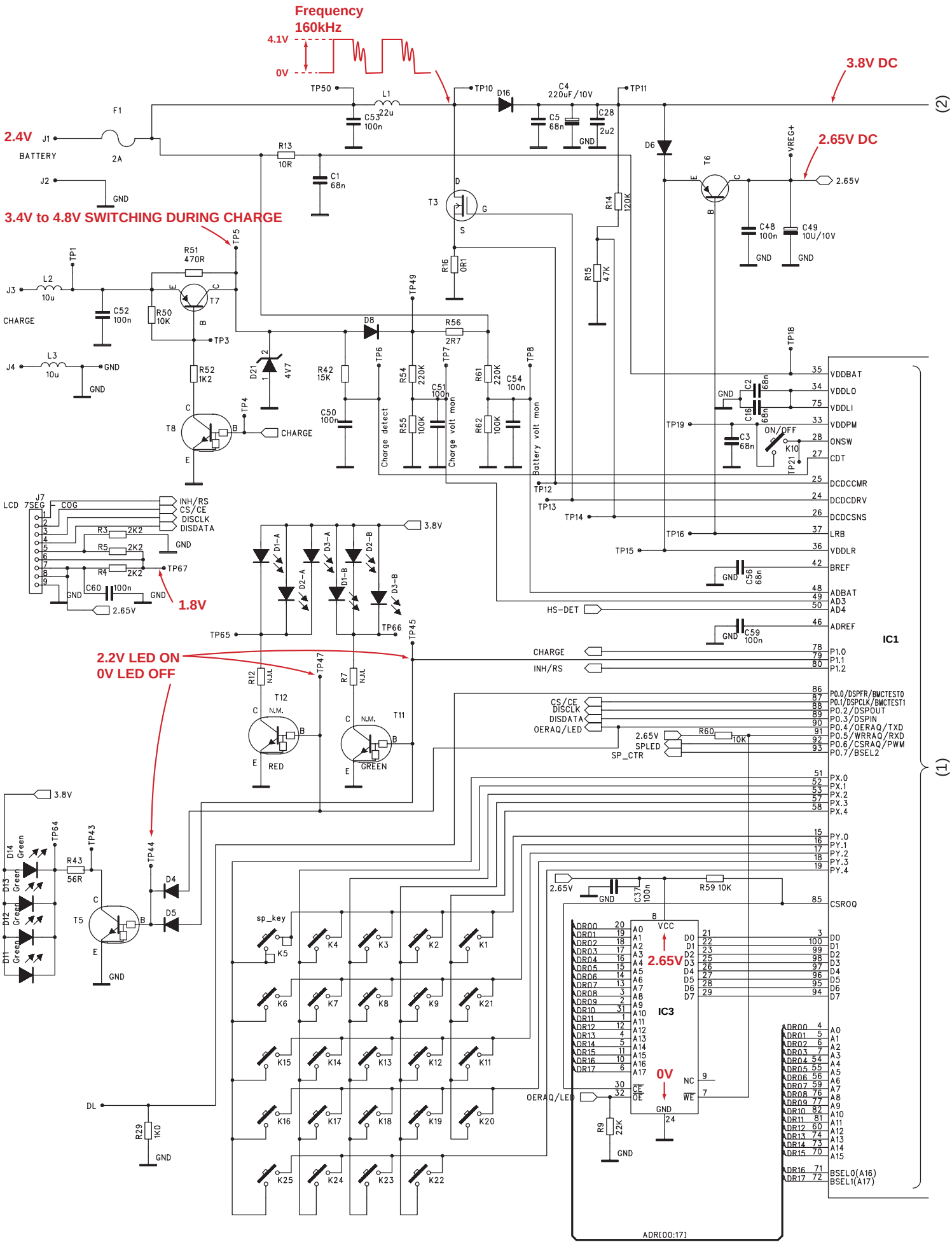

Country code resistor
B0
R62
5K1
B1
VUNREG
R13
82R
C80
100p
D16
BUZ1
DB111G
TP98
T6
R16
1K0
10.368MHz burst
70ns 700ms
+2.5V peak
(1)(2)(3)(4)(5)(6)(7~10)(11)(12)(13)
DECT RF Modul INF
ANT1
ANT2
TP101
SYDA
SYCL
SYEN
SYRI
SYRI
PAON
DRON
RXDSG
RXDA
TXDA
TXDA
RSSI
3.8V
3.8V
GND
IC1
RF1
RF2
TP201
TP202
L4
0R0
C122
N.M.
C10
1p8
C9
N.M.
C8
N.M.
A201
Antenna
A203
Antenna
A202
Antenna
RX-DATA
C38
N.M.
C19
10p
C39
10p
C43
10p
C49
10p
+3.8V
C11
10p
C20
10p

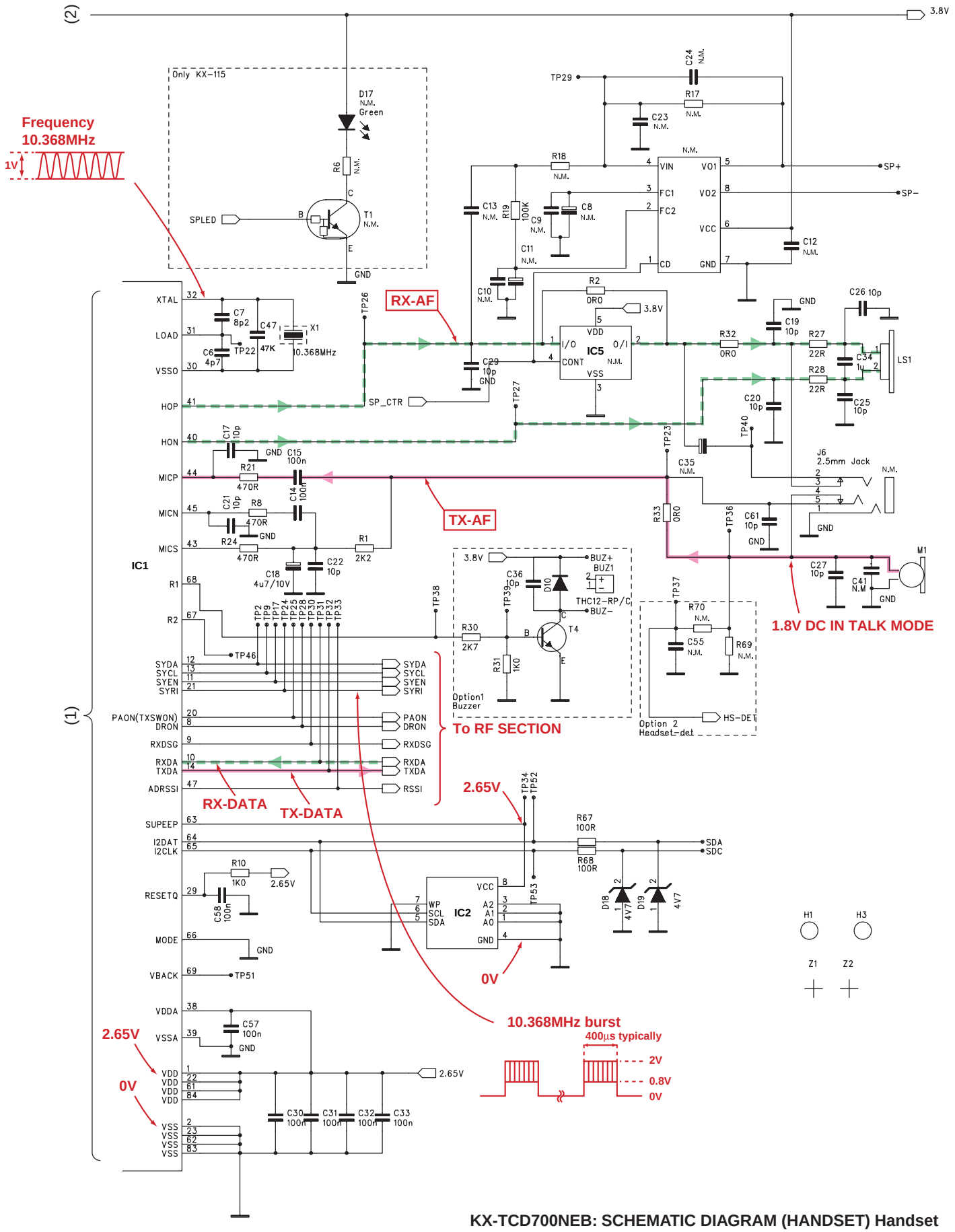

Country code resistor
B0
R62
5K1
B1
VUNREG
R13
82R
C80
100p
D16
BUZ1
DB111G
TP98
T6
R16
1K0
10.368MHz burst
70ns 700ms
+2.5V peak
(1)(2)(3)(4)(5)(6)(7~10)(11)(12)(13)
DECT RF Modul INF
ANT1
ANT2
TP101
SYDA
SYCL
SYEN
SYRI
SYRI
PAON
DRON
RXDSG
RXDA
TXDA
TXDA
RSSI
3.8V
3.8V
GND
IC1
RF1
RF2
TP201
TP202
L4
0R0
C122
N.M.
C10
1p8
C9
N.M.
C8
N.M.
A201
Antenna
A203
Antenna
A202
Antenna
RX-DATA
C38
N.M.
C19
10p
C39
10p
C43
10p
C49
10p
+3.8V
C11
10p
C20
10p

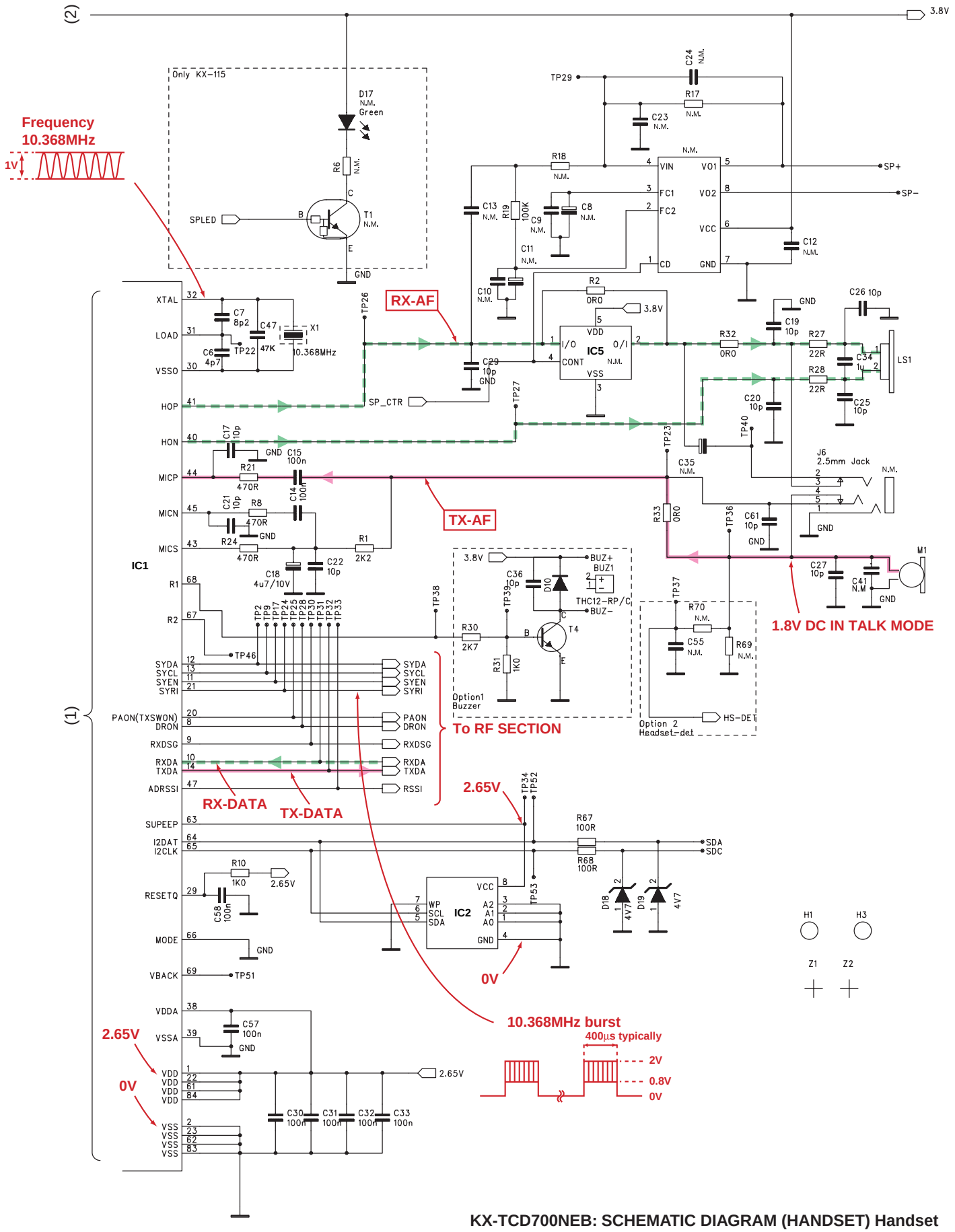

(7)
(6)
(5)
(4)
(3)
(2)
(1)
IC402
Z1
Edge connector
ANT1
ANT2
RF1
RF2
SYDA
SYCL
SYEN
SYRI
PAON
DRON
RXDSG
RXDA
TXDA
RSSI
3.8V
GND
+3.8VA
+3.8VB
C452
10p
C414
2n2
R417
2K7
VCC
TP2
C436
10p
C413
10n
C450
10p
C411
1n
L401
4n7
L400
4n7
R401
N.M.
R400
N.M.
C412
10p
TP1
R412
2K2
C416
4n7
C410
4n7
C409
1n
R411
4K7
C408
33p
C422
10p
C421
10p
C420
10p
C419
10p
C407
10p
C445
10p
C404
10p

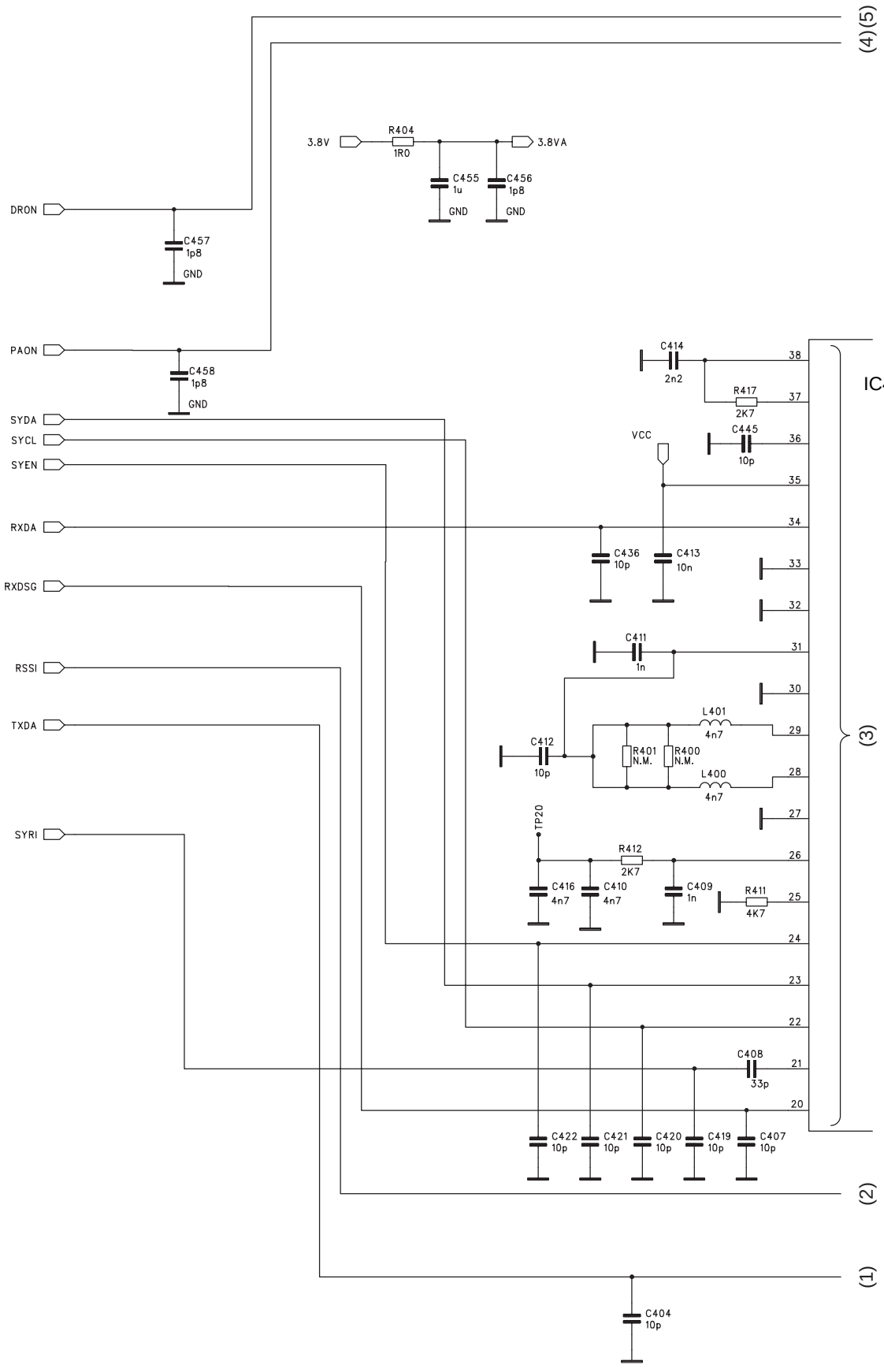

(7)
(6)
(5)
(4)
(3)
(2)
(1)
IC402
IC400
ICPMB6818_TSSOP10
PI
VCC
PAON
PSEL
PO
PIX
PSET
VCCS
PRAMP
POX
ANT1
ANT2
D401
D400
T400
TP3
TP4
VCC
+3.8VA
+3.8VB
R406 10R
C402 10p
C434 10p
C401 10p
C430 100n
L403 2n7
L404 2n7
C435 2p2
C454 2p2
C458 2p2
C426 100n
C431 10p
R416 330R
C433 10p
C456 2p2
C447 10p
C444 1p8
L402 22n
C448 10p
C457 2p2
C424 1p8
C400 N.M.
C432 10p
C442 1p2
C443 1p5
22p C441
R414 18K
C449 10p
C451 10p
0p47 C453
0p47 C1
1K5 R415
33p C423
560R R402
C425 1p8
R413 6K8
C427 10p
1p0 C439
8p2 C440
1p5 C438
1p5 C418
C403 N.M.
R409 330R
C405 10p
C415 68p
C455 10p
2R2 R418
C446 100n
C428 10p
C429 10p
C437 220p
560R R408
27K R410
C406 330p
H3
H10
H11
H4
H5
H6
H7
H8
H9
Z401
Fiducial Mark

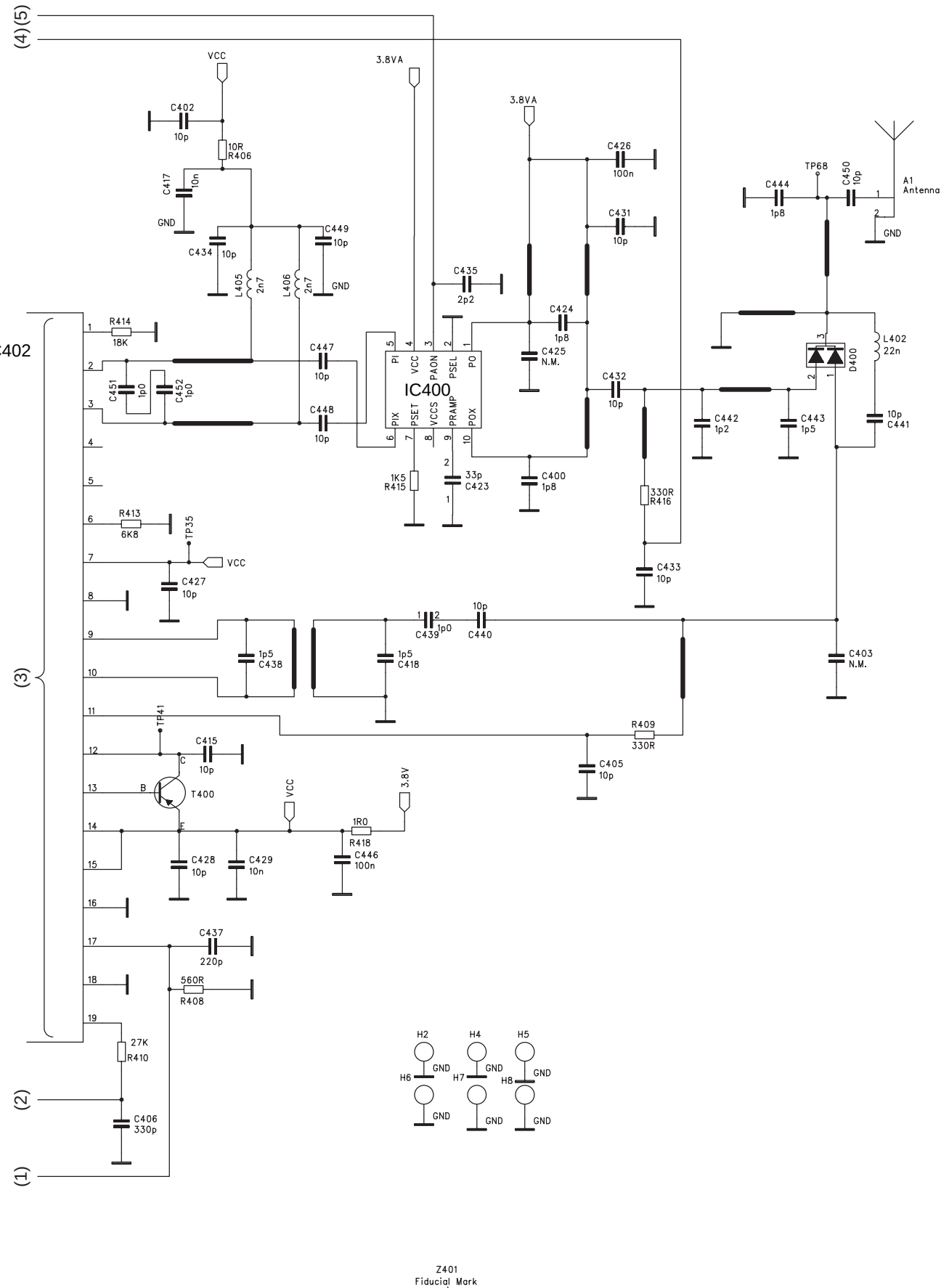

(7)
(6)
(5)
(4)
(3)
(2)
(1)
IC402
IC400
ICPMB6818_TSSOP10
PI
VCC
PAON
PSEL
PO
PIX
PSET
VCCS
PRAMP
POX
ANT1
ANT2
D401
D400
T400
TP3
TP4
VCC
+3.8VA
+3.8VB
R406 10R
C402 10p
C434 10p
C401 10p
C430 100n
L403 2n7
L404 2n7
C435 2p2
C454 2p2
C458 2p2
C426 100n
C431 10p
R416 330R
C433 10p
C456 2p2
C447 10p
C444 1p8
L402 22n
C448 10p
C457 2p2
C424 1p8
C400 N.M.
C432 10p
C442 1p2
C443 1p5
22p C441
R414 18K
C449 10p
C451 10p
0p47 C453
0p47 C1
1K5 R415
33p C423
560R R402
C425 1p8
R413 6K8
C427 10p
1p0 C439
8p2 C440
1p5 C438
1p5 C418
C403 N.M.
R409 330R
C405 10p
C415 68p
C455 10p
2R2 R418
C446 100n
C428 10p
C429 10p
C437 220p
560R R408
27K R410
C406 330p
H3
H10
H11
H4
H5
H6
H7
H8
H9
Z401
Fiducial Mark

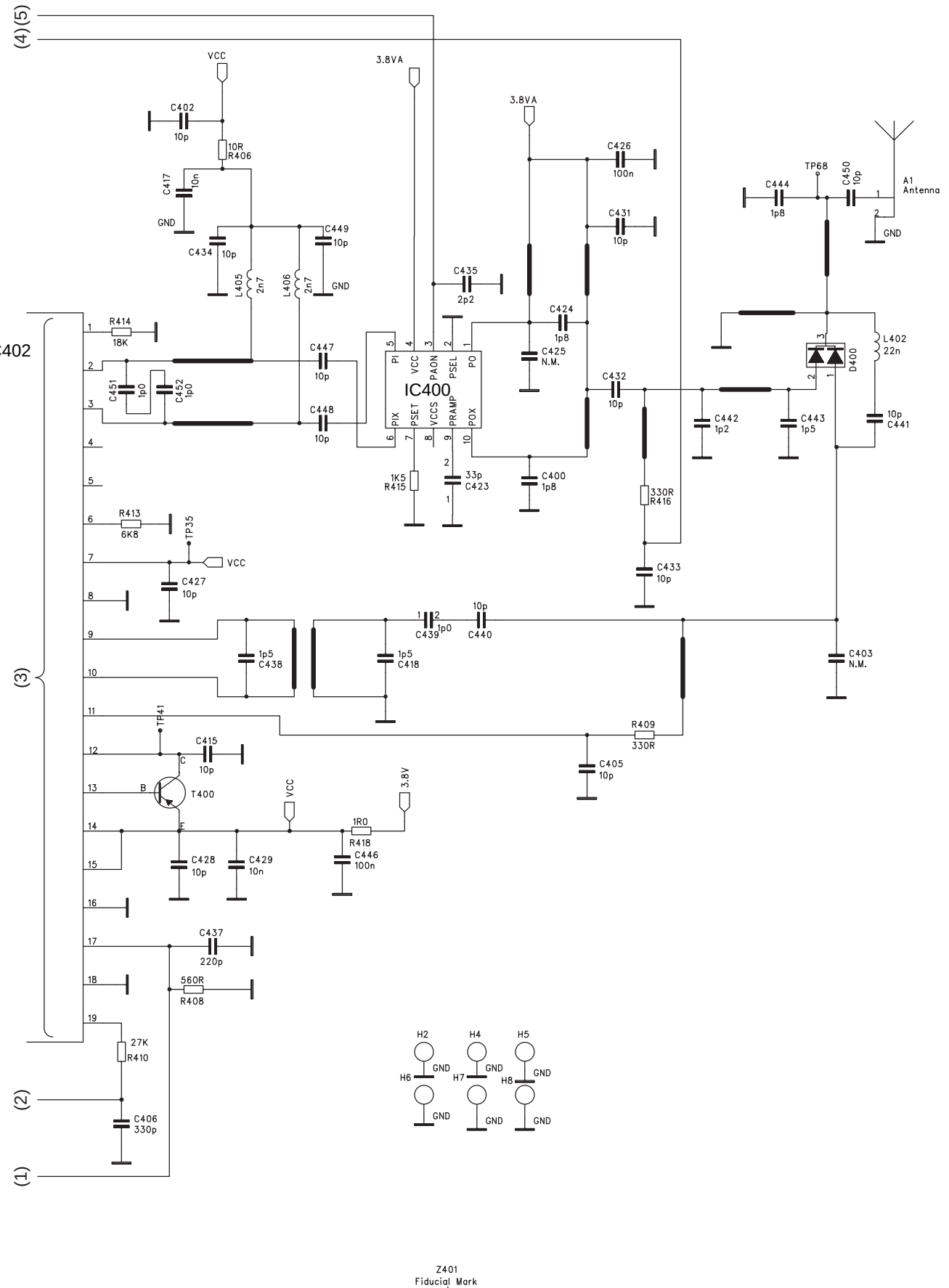

Frequency
160kHz
4.1V
0V
3.8V DC
2.4V
BATTERY
2A
2.65V DC
3.4V to 4.8V SWITCHING DURING CHARGE
CHARGE
Charge detect
Charge volt mon
Battery volt mon
ON/OFF
LCD 7SEG COG
1.8V
2.2V LED ON
0V LED OFF
RED
GREEN
sp_key
2.65V
0V
IC1
IC3
ADR[00:17]
(1)
(2)

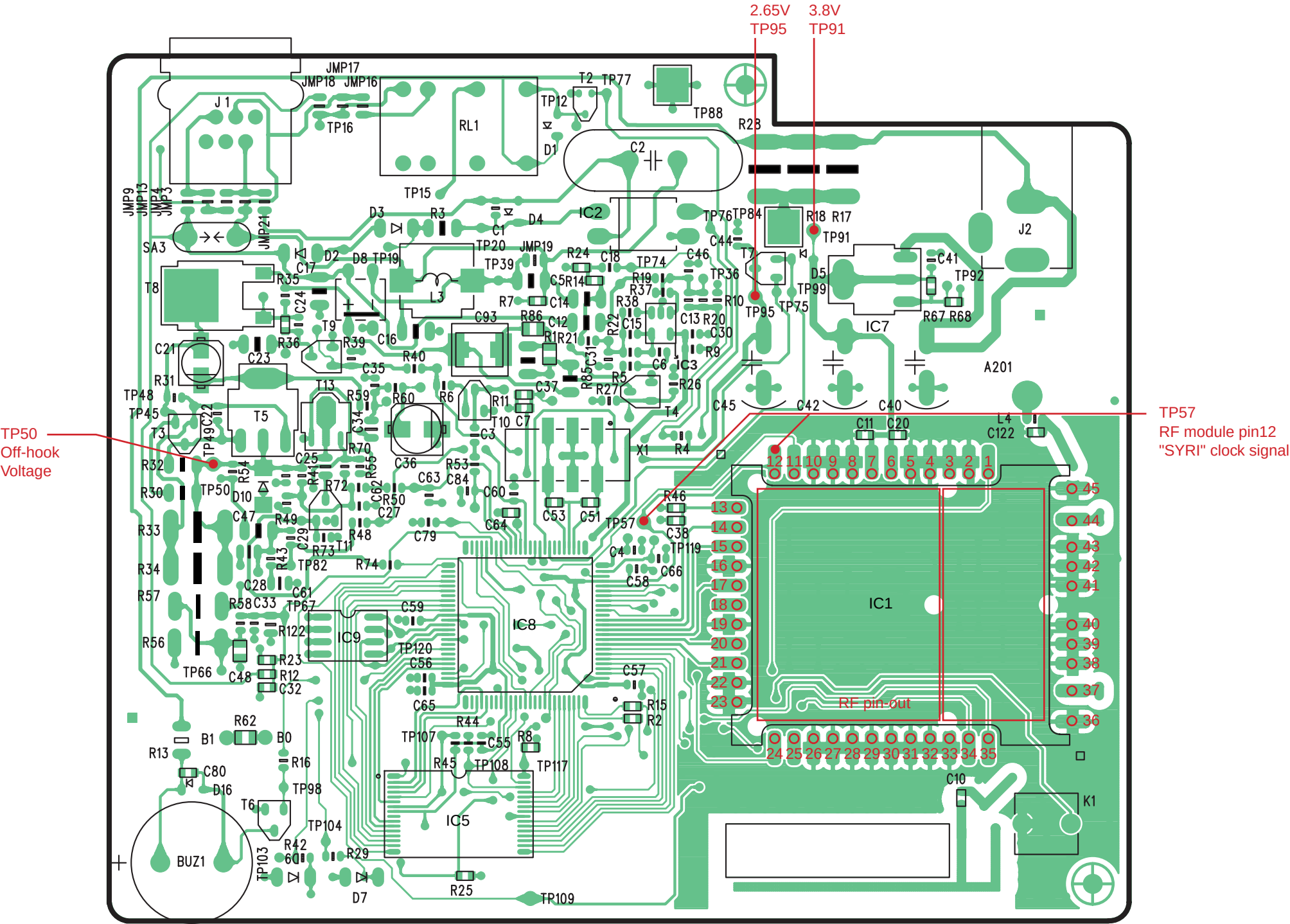

(2)
(1)
3.8V
Only KX-115
D17
N.M.
Green
R6
N.M.
SPLED
T1
N.M.
GND
Frequency
10.368MHz
1V
IC1
XTAL
LOAD
VSSO
HOP
HON
MICP
MICN
MICS
R1
R2
SYDA
SYCL
SYEN
SYRI
PAON(TXSWON)
DRON
RXDSG
RXDA
TXDA
ADRSSI
SUPEEP
I2DAT
I2CLK
RESETQ
MODE
VBACK
VDDA
VSSA
VDD
VSS
C7 8p2
C47
X1
10.368MHz
C6 4p7
TP22
47K
TP26
RX-AF
SP_CTR
TP27
C29 10p
IC5
I/O
CONT
VSS
VDD
O/I
N.M.
R2 0R0
C10 N.M.
C11 N.M.
C13 N.M.
R19 100K
C9 N.M.
C8 N.M.
R18 N.M.
TP29
C24 N.M.
R17 N.M.
C23 N.M.
VIN
FC1
FC2
CD
VO1
VO2
VCC
GND
SP+
SP-
C12 N.M.
C19 10p
C26 10p
R27 22R
R28 22R
C34 1u
C25 10p
LS1
R32 0R0
C20 10p
TP40
TP23
C35 N.M.
R33 0R0
TP36
J6
2.5mm Jack
N.M.
C61 10p
M1
C27 10p
C41 N.M
TX-AF
1.8V DC IN TALK MODE
C17 10p
C15 100n
R21 470R
C14 100n
C21 10p
R8 470R
R24 470R
R1 2K2
C22 10p
C18 4u7/10V
TP2
TP9
TP17
TP24
TP25
TP28
TP30
TP31
TP32
TP33
TP38
TP46
3.8V
BUZ+
BUZ1
BUZ-
THC12-RP/C
C36 0p
D10
TP39
T4
R30 2K7
R31 1K0
Option1
Buzzer
TP37
R70 N.M.
C55 N.M.
R69 N.M.
HS-DET
Option 2
Headset-det
To RF SECTION
RX-DATA
TX-DATA
2.65V
TP34
TP52
R67 100R
R68 100R
SDA
SDC
R10 1K0
C58 100n
IC2
WP
SCL
SDA
A2
A1
A0
TP53
D18 4V7
D19 4V7
0V
10.368MHz burst
400µs typically
2V
0.8V
0V
C57 100n
C30 100n
C31 100n
C32 100n
C33 100n
H1
H3
Z1
Z2

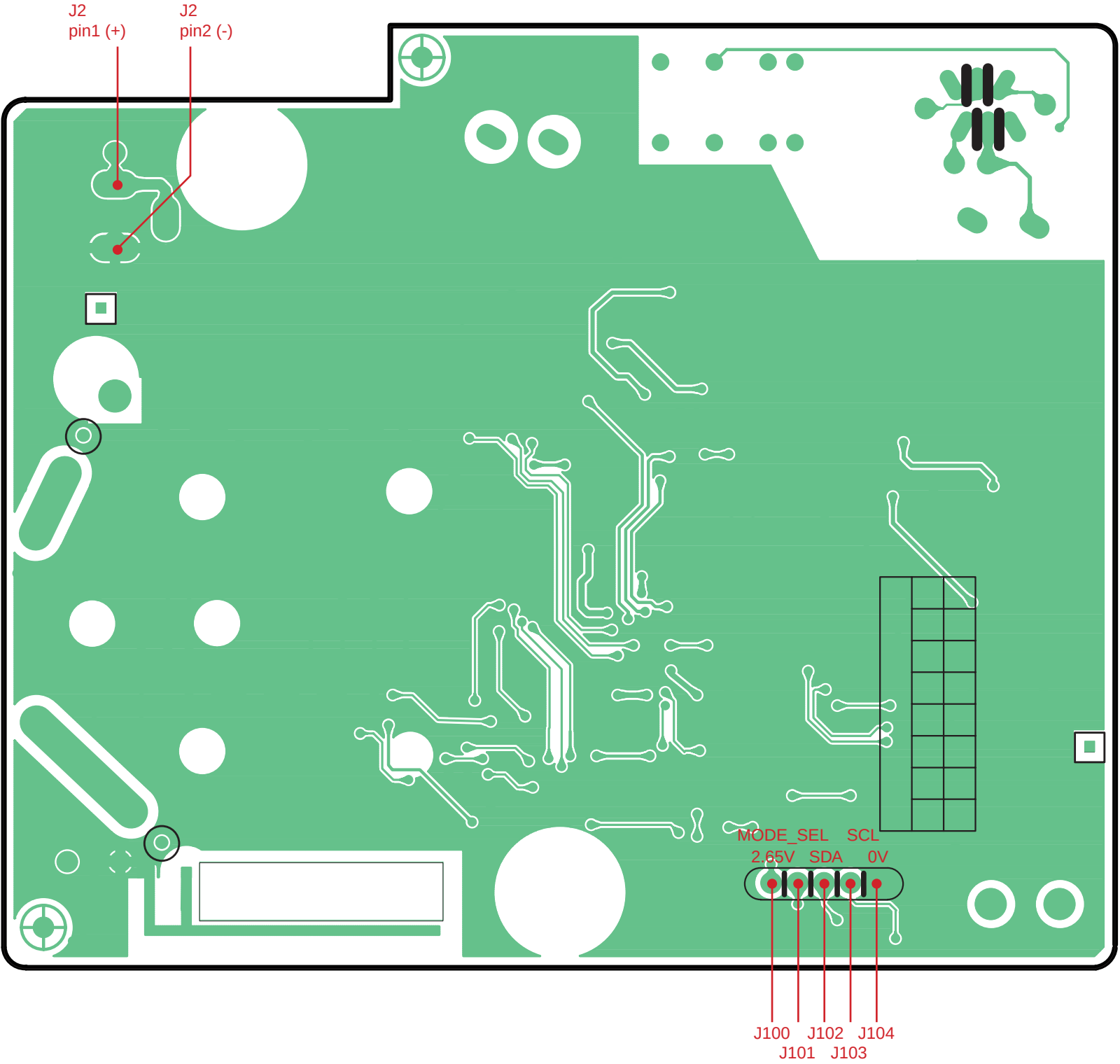

(2)
(1)
3.8V
Only KX-115
D17
N.M.
Green
R6
N.M.
SPLED
T1
N.M.
GND
Frequency
10.368MHz
1V
IC1
XTAL
LOAD
VSSO
HOP
HON
MICP
MICN
MICS
R1
R2
SYDA
SYCL
SYEN
SYRI
PAON(TXSWON)
DRON
RXDSG
RXDA
TXDA
ADRSSI
SUPEEP
I2DAT
I2CLK
RESETQ
MODE
VBACK
VDDA
VSSA
VDD
VSS
C7 8p2
C47
X1
10.368MHz
C6 4p7
TP22
47K
TP26
RX-AF
SP_CTR
TP27
C29 10p
IC5
I/O
CONT
VSS
VDD
O/I
N.M.
R2 0R0
C10 N.M.
C11 N.M.
C13 N.M.
R19 100K
C9 N.M.
C8 N.M.
R18 N.M.
TP29
C24 N.M.
R17 N.M.
C23 N.M.
VIN
FC1
FC2
CD
VO1
VO2
VCC
GND
SP+
SP-
C12 N.M.
C19 10p
C26 10p
R27 22R
R28 22R
C34 1u
C25 10p
LS1
R32 0R0
C20 10p
TP40
TP23
C35 N.M.
R33 0R0
TP36
J6
2.5mm Jack
N.M.
C61 10p
M1
C27 10p
C41 N.M
TX-AF
1.8V DC IN TALK MODE
C17 10p
C15 100n
R21 470R
C14 100n
C21 10p
R8 470R
R24 470R
R1 2K2
C22 10p
C18 4u7/10V
TP2
TP9
TP17
TP24
TP25
TP28
TP30
TP31
TP32
TP33
TP38
TP46
3.8V
BUZ+
BUZ1
BUZ-
THC12-RP/C
C36 0p
D10
TP39
T4
R30 2K7
R31 1K0
Option1
Buzzer
TP37
R70 N.M.
C55 N.M.
R69 N.M.
HS-DET
Option 2
Headset-det
To RF SECTION
RX-DATA
TX-DATA
2.65V
TP34
TP52
R67 100R
R68 100R
SDA
SDC
R10 1K0
C58 100n
IC2
WP
SCL
SDA
A2
A1
A0
TP53
D18 4V7
D19 4V7
0V
10.368MHz burst
400µs typically
2V
0.8V
0V
C57 100n
C30 100n
C31 100n
C32 100n
C33 100n
H1
H3
Z1
Z2


(4)(5)
3.8V
R404
1R0
3.8VA
C455
1u
GND
C456
1p8
GND
DRON
C457
1p8
GND
PAON
C458
1p8
GND
SYDA
SYCL
SYEN
RXDA
RXDSG
RSSI
TXDA
SYRI
IC402
C414
2n2
38
R417
2K7
37
VCC
C445
10p
36
35
34
C436
10p
C413
10n
33
32
C411
1n
31
30
L401
4n7
C412
10p
R401
N.M.
R400
N.M.
29
L400
4n7
28
27
TP20
R412
2K7
26
C416
4n7
C410
4n7
C409
1n
R411
4K7
25
24
23
22
C408
33p
21
20
C422
10p
C421
10p
C420
10p
C419
10p
C407
10p
(3)
(2)
(1)
C404
10p


(4)(5)
(3)
(2)
(1)
IC402
IC400
VCC
3.8VA
C402 10p
10R R406
C417 10n
GND
C434 10p
L405 2n7
L406 2n7
C449 10p
C435 2p2
C426 100n
C431 10p
C424 1p8
C425 N.M.
TP68
C444 1p8
C450 10p
A1 Antenna
R414 18K
C447 10p
C448 10p
C451 1p0
C452 1p0
PI VCC PAON PSEL PO
PIX PSET VCCS PRAMP POX
1K5 R415
33p C423
C400 1p8
C432 10p
330R R416
C433 10p
C442 1p2
C443 1p5
D400
L402 22n
10p C441
R413 6K8
TP35
C427 10p
C439 1p0
10p C440
1p5 C438
1p5 C418
C403 N.M.
TP41
C415 10p
R409 330R
C405 10p
T400
1R0 R418
C446 100n
C428 10p
C429 10n
C437 220p
560R R408
27K R410
C406 330p
H2 H4 H5
H6 H7 H8
GND
Z401
Fiducial Mark


(4)(5)
(3)
(2)
(1)
IC402
IC400
VCC
3.8VA
C402 10p
10R R406
C417 10n
GND
C434 10p
L405 2n7
L406 2n7
C449 10p
C435 2p2
C426 100n
C431 10p
C424 1p8
C425 N.M.
TP68
C444 1p8
C450 10p
A1 Antenna
R414 18K
C447 10p
C448 10p
C451 1p0
C452 1p0
PI VCC PAON PSEL PO
PIX PSET VCCS PRAMP POX
1K5 R415
33p C423
C400 1p8
C432 10p
330R R416
C433 10p
C442 1p2
C443 1p5
D400
L402 22n
10p C441
R413 6K8
TP35
C427 10p
C439 1p0
10p C440
1p5 C438
1p5 C418
C403 N.M.
TP41
C415 10p
R409 330R
C405 10p
T400
1R0 R418
C446 100n
C428 10p
C429 10n
C437 220p
560R R408
27K R410
C406 330p
H2 H4 H5
H6 H7 H8
GND
Z401
Fiducial Mark


2.65V
TP95
3.8V
TP91
TP57
RF module pin12
"SYRI" clock signal
TP50
Off-hook
Voltage
RF pin-out
IC1
IC2
IC3
IC5
IC7
IC8
IC9
A201
RL1
BUZ1
J1
J2
K1
SA3
T1
T2
T3
T4
T5
T6
T7
T8
T9
T10
T11
T13
L3
L4
X1
D1
D2
D3
D4
D5
D7
D8
D10
D16
TP12
TP15
TP16
TP17
TP18
TP19
TP20
TP36
TP39
TP45
TP48
TP49
TP50
TP66
TP67
TP74
TP75
TP76
TP77
TP82
TP84
TP88
TP92
TP98
TP99
TP103
TP104
TP107
TP108
TP109
TP117
TP119
TP120
JMP9
JMP13
JMP4
JMP3
JMP21
JMP17
JMP18
JMP16
JMP19


J2
pin1 (+)
J2
pin2 (-)
MODE_SEL
2.65V
SDA
SCL
0V
J100
J101
J102
J103
J104